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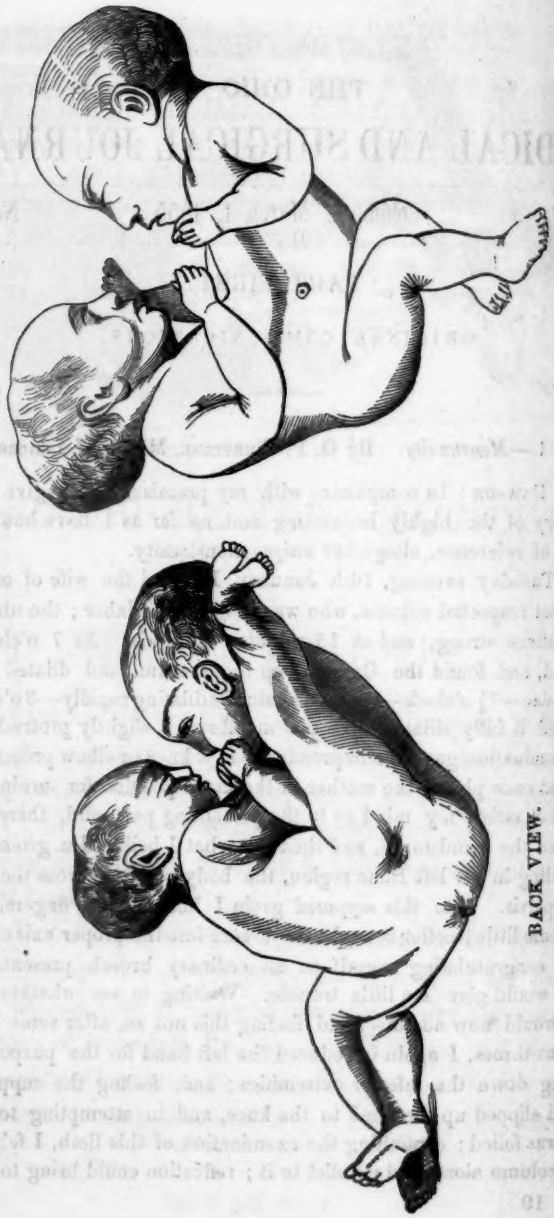
PART FIRST.

ORIGINAL COMMUNICATIONS.

ART. 1.—*Monstrosity.* By G. P. BŒRSTLER, M. D., of Lancaster.

DR. DAWSON: In compliance with my promise, I now give you a history of the highly interesting and, as far as I have had the means of reference, altogether *unique* monstrosity.

On Tuesday evening, 16th January, I visited the wife of one of our most respected citizens, who was in her ninth labor; the uterine contractions strong, and at 15 minutes intervals. At 7 o'clock I touched, and found the Os high up the sacrum, and dilated to a dime's size—7½ o'clock—touched again, Os dilating rapidly—8 o'clock revealed it fully dilated, and the membranes slightly protruding; this examination gave the impression that a knee or elbow presented, and I at once placed the mother in the usual position for turning; I could not satisfy my mind as to the presenting part, and, therefore, ruptured the membranes, and then felt what I believed a groin, the hip resting in the left Illiac region, the body oblique across the maternal pelvis. Into this *supposed* groin I hooked two fingers, and with some little traction brought the breech into the proper axis of the pelvis, congratulating myself on an ordinary breech presentation which would give me little trouble. Waiting to see whether the fœtus would now advance, and finding this not so, after some very vigorous throes, I again introduced the left hand for the purpose of bringing down the inferior extremities; and, feeling the supposed groin, I slipped up the hand to the knee, and in attempting to flex this I was foiled; continuing the examination of this limb, I felt the spinal column along and parallel to it; reflection could bring to my



FRONT VIEW.

BACK VIEW.

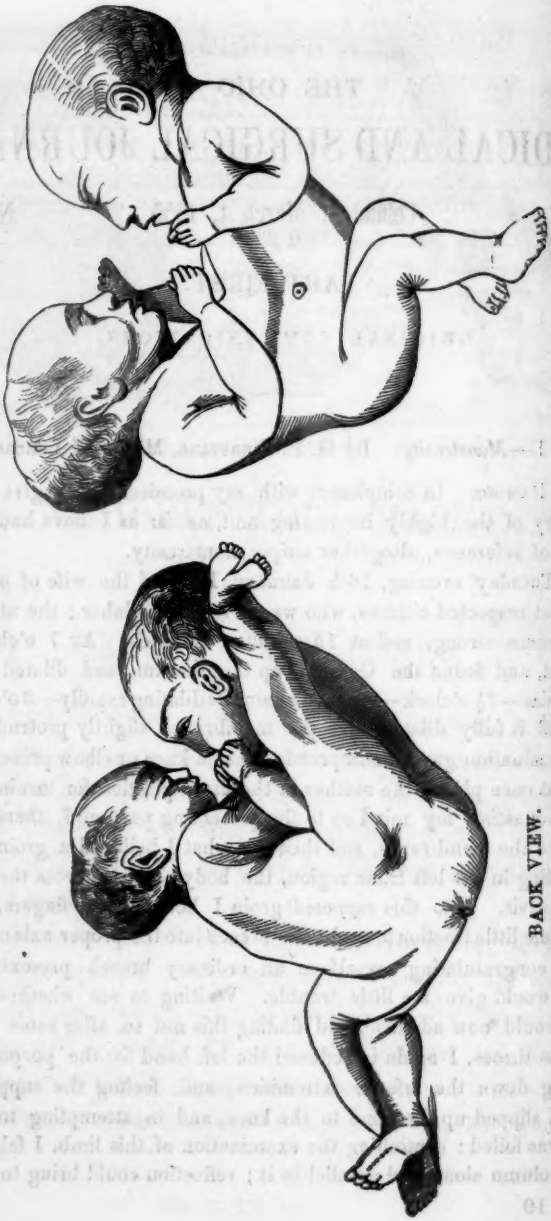
mind no such presentation, and partly withdrawing the hand to search for the fœtal pelvis, I found the two lower extremities flexed on its abdomen, both of which I brought down, unfortunately separating the left femur from its epiphysis. Having now three legs to deal with, the idea of twins was naturally fixed in my mind. The uterine contractions being vigorous, and the tractile force applied greater than in ordinary breech cases, I believed the leg of the other child to be the impeding obstacle, and at once introduced the hand to correct the entangled posture of the *twins;* carefully feeling this third leg, I found it firmly united to the body of the child whose two legs I had brought down, and arising from the dorsum of Illium. A malformation was now evident, its character unknown. Hooking two fingers above the attachment of this back leg, and grasping the two other thighs with the right hand, I acted with considerable force on these two points, and found the pelvis and body of the child gradually advancing through the inferior strait, until it reached the junction of two bodies united by the intergrowth of the ensiform cartilages; at this point I met the greatest resistance during the labor; this being hapily overcome I found two bodies diverging from each other, which, however, passed the strait without much trouble; and by passing the hand up, I felt two apparently well formed heads, each as large as that of an ordinary child. To my mind it seemed impossible that those two heads could pass the strait at once, and I looked to the probable necessity of lessening one or both; but, to my great gratificaction, they passed without any extraordinary efforts being called for. This could not have resulted but for the *good fortune* of the head of the smaller child resting upon the neck and cheek, up to the malar bone, of the larger.

Thus was completed a delivery of a most extraordinary "lusus naturæ" to the well-being of the mother and children.

The mother's recovery was rapid. The children are living—one vigorous, the other feeble—both take food and urinate and defecate. There was one ordinary placenta, and one cord.

Description of the Children.

The heads, faces, arms and hands, and the chest down to the ensiform cartilages, are well developed, and in proper proportions. From the junction downwards, one body, its anterior surface from side to side broader than in an ordinary child—the abdominal mus-



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cles well developed—the umbilicus in situ—two spinal columns perfect, the coccyx of each terminating on each side of the anus, and about half an inch from it—two pelves *united*, the left one belonging to the larger child, encroaching upon and lessening that of the right side. The sex female, one vulva and one anus, the opening of the latter not larger than an ordinary rye straw; the two lower extremities are of proper size and proportions.

Upon the back, and from the dorsum of the two Illia, arises a leg, running up between the two spines and the two inner shoulders, and terminating in a right and left foot, joined at the heel. This is, in truth, a double leg, enveloped in one common integument, having two femurs, two tibias and two fibulas; the leg admits of partially moving it directly backwards to a distance of several inches from the back of the child.

I have no doubt that nature designed one of these legs for each child; for when the right child is awake it moves its lower extremity, as also the left foot of the double leg; when asleep the limb is quiet—and so with the other child. Tickling the sole of either foot movement follows in the limb, but I have not perceived motion in the opposite leg to the one tickled.

The two bodies have each its heart and lungs—puerile respiration distinct—the action of each heart easily felt, though the first and second sounds cannot be distinguished, owing to the rapid systolic and diastolic movements.

So far as I have been able to detect, I believe the respiratory and cardiac action of both children to be synchronous, though the harmony of the former is interrupted by the crying of either child. I have frequently observed that when one of the children is nursing and the other crying, the latter falls to sleep; so frequent is this occurrence that I hold it to be the rule, and it shows the strong sympathetic relation between these *two distinct human beings joined in one.*

What the unison of organs may be in the abdominal cavity we, of course, have no means of knowing; all reasoning thereon must be hypothetical. That the viscera are duplicated, we think probable. In the feeble child there existed the anomaly of the frœnum linguæ, arising from the dorsum of the tongue about half an inch from the tip, and inserted into the palatine arch, of course rendering the tongue useless in sucking.

The following admeasurements were made in the presence, and by the aid of Drs. Effinger, Davis and Wagenhals. Owing to the want

of calipers the circumference was taken. Occipito Frontal, 13¼ in. in the larger, 12½ in. in the smaller; Bi-parietal, 6 in., 5½ in.; this is half the circumference, having measured from one parietal protuberance to the opposite, across the vault. Mental 4¾ in., 3¾ in. Occip: Bregmatic, 13½ in., 13¼ in.; Shoulders, 10 in., 9 in.; Junction of Bodies, 16¼ in.; Pelvic, 13½ in.; length from head to foot, 17½ in., 17 in.; weight, 10 pounds.

These are the facts in this, to me, exceedingly interesting case, and I very much regret the absence of men fully capable to examine it in all the lights which our science demands from its votaries.

In the development of Embryos in Utero, certain starting points are always *essential* to the production of particular organs or limbs; this law is clearly manifested in the production of the double leg, for in the fusion of the two pelves the *acetabular portion* is presented, and hence the development of this extra limb.

A letter from Prof. Meigs refers me to the great work of M. Serris on Monstrosities—to it I have no access, but from the Professor's letter, I learn that a specimen approaching mine was born in Sardinia a few years ago, and brought to Paris for public exhibition; the union in this case was in the two pelves, and called by M. Serris a *pelvidym*. In mine the union is from the Zyphoid cartilages down, and, hence, I ask if it is not properly called an Hepato-pelvidym?

Death of the Children.

On Tuesday morning, 20th February, the mother observed the larger gasp a few times, and at 15 minutes before 8 o'clock breathing ceased; at 8½ o'clock I saw it, and could not detect any respiratory act nor pulsation of heart or arteries. Drs. Effinger and Wagenhals pointed out to me the apparent movements of the carotids. We, however, all became satisfied that *these movements depended upon the circulation of the smaller child.* The asphyxiated condition continued for *four and a half hours—no respiration, no pulse, the capiliaries of the skin filled with dark blood,* giving a purple hue to its entire body, and *beautifully showing* the *demarkation* between *the asphyxiated* and *living child*; this line from the junction down, extended half an inch to the right side of the Umbilicus. A violent effort in coughing by the smaller child communicated a shock to the larger, convulsive movements of its limbs followed, and it uttered a few feeble cries, when it again relapsed into its condition of suspended animation, and so remained till five o'clock in the evening, when

the smaller child died—one gasp in the larger, and in 10 seconds it slept with its sister. Thus these children fortunately survived their unfortunate union only five weeks.

Accompanying this history you will have Daguerreotypes of the front and back views. These pictures are fac similes of the original, and executed by my fellow-townsman V. M. Griswold, in his style of accuracy and finish. You have seen the children, and I ask you to add to the above any remarks you may think proper.

It will not be deemed inappropriate, or improper, to append to the foregoing interesting account by Dr. Bœrstler of the unique malformation it was his fortune to meet with, condensed accounts of some other malformations which have occurred from time to time. Our readers, however, will remember that it is by no means intended in the few sentences we shall bring together, to furnish a complete essay on the subject, for neither the short time allowed to us, nor the sources of information within our reach, would enable us to do more than specify a very few of the more remarkable malformations which have occurred, and to add but a few observations which seem necessary in the premises.

The cases already observed have been sufficiently numerous to have been classified under several divisions. These have varied with the author that introduced them, each new observer adding a classification as a modification, and, in his estimation, an improvement upon those of his predecessors. Without entering into too much detail, suffice it to say that, they may all be reduced to three great varieties founded upon deviations from the normal standard in —(I) *Position;* (II) *Form;* and (III) in *Number* and *Size* of organs

I. Malformations *from the wrong position* of proper organs, constitute perhaps the most numerous class. The variations in the course of blood-vessels, familiar to every Anatomist, the special terror of the operative Surgeon, are the most common instances. In one case the right subclabian artery arising from the left side of the arch of the aorta, and passing between the œsophagus and trachea, gave rise to such difficulty in swallowing that the subject (a female) could hardly summon resolution enough to force down sufficient food to prevent starvation.—The same anomalies in the position of muscles are also not unfrequently observed. Even the viscera follow the same course occasionally. Dr. Baillie describes a case in the Philosophical Transactions, in which the organs within the chest and abdomen were

transposed so that the heart was placed on the *right* side and the position of its cavities and vessels were reversed. The liver occupied the *left* hypochondriac region, and the spleen the *right*. The great end of the stomach was seen to the right of the abdomen, and the pyloric orifice a little on the left of the spine. The mesentery was inclined obliquely from right to left. The ileum terminated in the great intestine on the left side, and the cœcum was to the left of the psoas magnus and ilicacus internus muscles. The arch of the colon passed from the left to the right side of the body, and the sigmoid flexure crossed over the right psoas muscle to get into the pelvic cavity. The vessels and nerves in relation with these parts were normal in their size, but corresponded in their relations to the altered situations of the viscera. During life nothing unusual had been suspected.

A soldier aged 72, died, and was examined by Mery, when the same transpositions were observed in the chest and abdomen.

Mr. Abernethy describes a case of a child ten months old, where the viscera, but not the blood-vessels, were transposed.

Among the anatomical preparations belonging to Starling Medical College in this city, is a dried preparation of a man in which the heart is found on the right side, the liver on the left, and the internal viscera generally reversed.

II. Next to the malformations arising from changes of position of organs, those in the *form* are the more numerous. In these cases the number of organs, and even their position, may be normal, but their form is altered so as to constitute a deformity. They may resemble similar organs belonging to animals—may consist in an improper division of parts which should be united, or in the fusion of organs usually separate. Fœtuses, resembling the fabled Cyclopes, are occasionally met with where a coalescence seems to have taken place between the eyes. There are many varieties of this deformity which is comparatively frequent among animals, and especially among swine. They are usually born alive, but are not viable. So union of the lower extremities, with more or less atrophy, may take place, forming one apparent leg with two feet; or only one whole limb, or even only an imperfectly shaped caudiform mass. They are not viable.

There are other amalgamations frequently met with which do not influence the viability of the infant, such as coalescence of fingers or toes, which may be partial, having separate bones, but one envelope of soft parts, or having blended bones and soft parts.

Various of the viscera which occurs in pairs, may sometimes be blended as the kidneys and ovaries.

The most common instances of cleavage of organs are the different forms of hare-lip and cleft palate. Fissure of the tongue—of the vertebræ, constituting spina—bifida—of the thorax and abdomen—of the bladder, with or without inversion of the mucous membrane—of the urethra—of the diaphragm, giving rise to congenital diaphragmatic hernia—of the scrotum forming many instances of so-called hermaphroditism, have been recorded by many sound observers.

III. We come now to the last form of monstrosity arising from deviations in the *number* and *size* of organs in which there is either a deficiency or excess. Almost every one of the organs has been found wanting in individual cases. Acephalous fœtuses are by no means rare. It has fallen to the lot of many practitioners to bring them into the world. In these either the whole head or some of its components may be absent. Thus the bones of the cranium or face may be wanting, or some portion of the nervous centres, the brain and spinal marrow.

These cases, though usually still-born, are sometimes viable. They have lived, cried and suckled many hours. In one case of congenital absence of the bones of the cranium, but where an imperfect cerebrum seemed to exist, the child survived six days. In other respects it was perfectly formed. It took no food, and had no evacuation of any kind. Respiration went on naturally; it did not cry, but often made a hideous, whining noise. When the soft substance at the top of the head was touched, general and violent convulsions took place. No signs of voluntary motion were observed. The spinal marrow may be absent with or without the brain. In one case recorded, the spinous processes were all absent, exposing the spinal canal its whole length; there was no spinal cord, but its place was supplied by a vascular membrane. Most of these fœtuses, according to Sœmmering and Morgagni, are females. Portions of the face are absent, but more often in animals than in man.

The trunk may be deficient in several respects. The neck may be short from absence of the cervical vertebræ, giving an appearance to the head as of a cat's head, which name (katzen kopfe) has been applied to them in some parts of Germany. Internal organs are absent in some cases. Sir Benjamin Brodie met with a

fœtus of nearly the natural form and size in which there was no heart. There was no communication between the trunks of the arteries and veins. The vena cava of the fœtus was continued so as to form the umbilical vein, and the internal iliac artery of one side was reflected to form the umbilical artery. There were various other defects, as in the fingers and toes. The liver was deficient, and the palate cleft. Several other cases are mentioned in the Memoirs of the Academy of Sciences in Paris for 1720 and 1740. Many other instances are recorded by modern observers, especially one by Dr. Clarke, in which the brain and heart were both absent.

The extremities may be absent, one or all, or atrophied. Fingers and toes are often absent, and even limbs. Individuals born without certain limbs, have survived to a good age, and astonished the world by their exhibitions of the manner in which they perform with their organs processes usually belonging to those absent. A child who had no ear or any perforation for one, and yet heard, is mentioned. Animals are born without certain limbs, of which Haller gives many instances, among others a cat without fore legs; and at this time, at any rate during the past summer, one of the attractions at the museum and gardens on the Canada side of Niagara Falls, consisted in a dog born without fore legs, which seemed at that time lively and healthy in all other respects.

The reproductive organs may be severally absent, especially one testis or an ovary; nor does this appear to affect the propagation of the species. The uterus has been known to be rudimentary—even absent. The penis still more often.

In this class also may be included those cases of deficient opening, as atresia ani—vaginæ—oris—where cloacal terminations therefore exist.

Mal-formations, with one or more supernumerary organs, are comparatively frequent. Geoffrey St. Hilliaire gives an instance of seven fingers on one hand, and eight toes on one foot. Similar cases are recorded by other authors. Those born with six fingers are by no means rare, and once formed, the peculiarity is liable to be perpetuated to succeeding generations.

Much more rare than these are those congenital mal-formations where a number of organs are added, so that an approach to duplication is discovered with more or less ease. The duplication may be so nearly complete that the monster appears as the union of two children, as in the case described by Dr. Bœrstler, or one of them

being so atrophied appears as the parasite of the more perfectly developed child, to which it is united. These are termed monsters by implantation, and the former "double monsters," or by coalition.

All varieties of supernumerary parts have been observed from the addition of a single muscle or vessel, internal or external organ, and limb, to a complete human being, from those having a single finger added, to the coalition of two perfect bodies, as in the Siamese Twins. An additional head has been observed often in animals. An ox is mentioned in the Philosophical Transactions with an extra head attached under the lower jaw, and a cow attained its full growth with two heads and necks. Such anomalies form the staple wonders of many traveling showmen. Rarely this deformity has been observed in man. Sir Everard Home's case is interesting in this relation. It was an Indian child with a double head, which lived to the age of two years, and died then, from the bite of a *Cobra di Capello*. The midwife, horrified at the strange sight of a double head, endeavored to destroy the infant directly after birth by throwing it on the fire, where it remained long enough to burn one of the eyes and ears to some extent. The body was naturally formed, but the head double. Beside the proper head another of the same size, apparently perfect in shape, was attached at the upper part. They were attached at the crowns, the upper head being inverted. They were firmly united, without any indentation. The face of the upper head was not over that of the lower, but had an oblique position, the centre being directly over the right eye. The neck of the upper head was two inches long, and its extremity terminated in a soft tumor like a small peach. The eyes of both heads moved at the same time, but those of the upper head in different directions. The sides of the upper contracted on exposure to light, its eye-lids were never completely closed, but remained a little open, even when the child was asleep. Tears flowed almost constantly from them, but never from the eyes of the lower head, except in crying. The superior head seemed to sympathize with the child in most of its natural actions. When it nursed the upper head seemed to express satisfaction by an increased flow of saliva from the mouth, though it always flowed a little from it. Both faces smiled. When the skin of the superior head was pinched it did not feel as much as if the lower were touched. No pulsation could be detected in the situation of the temporal arteries of the upper head at the age of the age of six

months, but the superficial veins were very evident. The head is now in the Hunterian Museum in London. The two skulls are nearly of the same size, and equally ossified. The frontal and parietal bones, instead of being continued over the top of the head, meet each other, and are united by a circular suture. The two skulls are almost equally perfect at their union, but the superior skull, as it recedes from the other, becomes imperfect, and many of its parts are deficient. They both have the same number of teeth. No septem of bone divides the two crania so that the two brains must have been contained in one long case.

An Italian was seen in 1698 with another head than his own proper one, connected to the chest below the cartilage of the third rib. It adhered by the lower half of the right side of the face and head, so that the right ear and surrounding parts were not seen. All the rest was plainly discernible. The man felt whatever touched the additional head.

Other parts of the body may also be additional. The vertebræ may be increased in number, and give rise to a caudal extremity. Men with imperfect tails have been observed by competent authorities. Indeed, if we may credit certain travelers' stories of late years, this, which has been considered a very rare anomaly, must be raised above the class of deformities, and described as one of the characteristics of a race. Of which, doubtless, more proof than has yet been given will be required by this sceptical age!

An additional abdomen and lower extremities were observed by Winslow to be attached to the left side of the epigastric region of a girl 12 years old. The second body was small. It had a row of vertebræ connected to the sternum of the other. Both bodies discharged fœces. There were no muscles in the additional body, the interval between the bones and skin being filled with fat, blood vessels and nerves. Whatever touched the additional body was felt by the child. There were no sexual organs.

Bartholei and Zacchias relate that they saw with astonishment the double monster, who was exhibited in many of the principal cities of Europe, named Lazarus Colleredo. He was 28 years old, well formed and of the usual stature. To his chest was attached another deformed being, hanging from the lower end of the sternum. It had two arms with three fingers on each hand, and one imperfect lower extremity. The head was larger than that of Lazarus himself, but not well formed. It was covered with hair but no beard.

The trunk seems to have been imperfect. The eyes were generally closed, the mouth open, with saliva constantly flowing from it. There was a pulsation in the chest. Respiration was hardly perceptible. The hands, ears and lips could be moved. It was nourished by food taken in by Lazarus. The pious parents had caused the addition to be christened separately from Lazarus, under the name of Johannes Babtista. On this point Zacchias raises an argument, as to whether John Babtista had a rational, distinct soul. As he inclines to the negative, he doubts the propriety of its baptism, but reverently bows to the decision of the church, in which he does not acquiesce. On the origin of these addenda he determines that they are "*additamenta ex luxuriante semine enata, et quod nullam ne per somnium quidem rationalis animæ potentiam sortirentur.*"

In Ambrose Pare's works mention is also made of a man, forty years old, who had an additional body, perfect in its parts except the head. A similar deformity suspended to the navel of a boy, six years old, is recorded by Amatus Lusitanus. A Gentoo boy is mentioned in the Philosophical Transactions, who had a little brother suspended to the Pubes, and consisting of pelvis and lower limbs. He felt whatever was done to this, but could not move the legs, which were cold.

Beside these, monsters formed by the addition of other supernumerary organs, there are some, where (with additional organs, more or less perfect) the points of union are unlike the organs of a natural body, but exhibit a coalescence of the same parts of the two bodies, in various degrees and shapes. In animals this is more often the case than in man, and a friend of the writer has a specimen of a young pig with two distinct bodies and a head formed apparently by the blending of two normal heads. In the work of Soemmering plates represent a series of such cases, from a head naturally formed to two natural heads joined, in which the intermediate grades are filled by individuals differing almost imperceptibly from each other. The coalition may take place at almost any point. In Rita Christina, born on the 12th of March, 1829, at Possari, in Sardinia, the head, neck, and upper extremities were doubled, while the chest, abdomen and lower extremities were more or less fused together. It lived about eight months, and died in Paris, whither it was taken for experimental purposes. An interesting case of this kind we shall notice after we have glanced at other varieties of mal-formations.

The thorax may be double and the union take place in the abdo-

men, as in a case of Forieps, born at Stamsried, in Bavaria, Jan. 1, 1838. Two children joined by the abdomen, double above and having one penis and two lower limbs, but no rectum, lived seven days and died within a quarter of an hour of each other. Another of the same character is said to have lived in Scotland during James IV.'s reign, for 28 years. One body died some days before the other. To the same category belong the celebrated Hungarian Sisters. The duplicature of organs was, however, more complete. They were born at Szony, in Hungary, in 1701, and died in 1723, when they were buried in St. Petersburgh. They were joined at the back, below the loins, and had their faces and bodies placed half sideways toward each other. They had one anus and one vulva. The viscera were all double, except that the two vaginæ united into one toward the external aperture, and the two recta terminated in the same way. There were two bladders and urethræ opening separately. The two sacra were blended into one and had a single os coccygis connected to the lower end. The two aortæ were joined into one tube before the division of the iliacs, and the inferior vena cava were united in the same place. They were not equally strong nor well made. They had separate wills, and the strongest dragged the other after her when she wanted to go any where. At six years old one had a paralytic affection, which left her much weaker than the other. They had different temperaments. Neither the alvine nor the renal evacuations were performed at the same time by both sisters. The menses happened at different periods, more than a week intervening. Sometimes one, sometimes the other, would be disordered at such periods. One slept oftentimes while the other was awake; one had a desire for food while the other did not They suffered from small pox and measles at the same time, but other diseases attacked them separately. Judith was often convulsed, while Helen was well. One of them had a catarrh and colic without affecting the other. Their intellectual capacities differed. They were, however, both lively, merry and well bred, and could converse in several languages, as Hungarian, German, French and English. They died together.

To these instances of coalescence of organs and bodies we may add those where a body has contained another body, or individual parts, of which several examples might be quoted. We have only space for one instance of a *fœtus in fœtu*—which is described by Mr. Young, in the first volume of the Medico-Chirurgical Transactions.

From the time of birth a tumor was perceived in the abdomen of the child, which increased until the time of death, which occured at nine months. A firm and thick black cyst was placed in front of the abdominal aorta between the origin of the celiac and mesenteric arteries, attached to the left crus of the diaphragm, and covered in front by the stomach and duodenum, pancreas and its duct, and transverse portion of the colon. It contained 78 oz. of limpid fluid and a rudely formed human fœtus, adhering to its surface by a fleshy cone, proceeding from the umbilicus, and measuring one inch and seven-tenths at one end, and one inch at the other. This production was covered by integuments of the natural appearance, in which there was sebaceous matter. The extremities were distinctly recognizable, and in many respects well formed. There were distinct fingers, toes and nails, but very short and stout. There was something corresponding to the basis of the cranium—a large portion of the spine, some short ribs, sacrum and ossa innominata, and some bones and joints of the limbs, well formed. Very little muscular substance was found in this creature, none on the trunk, a little about the hips and none in the remainder of the limbs, which consisted of adipose substance. There was neither hair nor spinal marrow, but a distinct plexus of nerves just within the umbilicus, about the commencement of the intestines, to which numerous branches were distributed. There were two locks of hair just below the parts corresponding to the head. There was neither heart nor lungs, no abdominal viscera except a few inches of naturally formed intestine with mesentery. Two kinds of vessels were distinguished, but their connection with the cyst was not made out. A scrotum and hairs were distinctly cognizable.

Not only may parts of two separate bodies be thus in various ways united, but monstrosities have been recorded in several instances in animals, and a few in man, where parts of three bodies entered into their formation. Thus, according to Geoffrey St. Hilliare, Drs. Reina and Galvagni observed in Catania in the year 1832, a child with three heads.

We translate the following case from Walter's Anatomical Observations,* which was examined and dissections of it made by Dr. Johann Gottlieb Walter, and do so the more fully as it more nearly resembles Dr. Bœrstler's unique case than any we have discovered in our limited researches.

* Walter's Anatomische Beobachtungen, &c. Berlin. 1782.

Anna Maria Woblack, aged 35, residing near Berliu, was confined on the 17th November, 1773, of twins, consisting of a fine boy, who did well, and the following monster who died during labor.

External Appearance.

The monster appeared composed of two children, whose faces looked toward one another. They were joined at the breast by union of the zyphoid cartilages—the space, therefore, between the fœtuses above formed a triangle, with the apex below and the base by a line drawn between the heads. The heads are about the same size. One neck however, is shorter and more contracted than the other. The two arms of the same side are also smaller than of the other side. Otherwise they are equally well formed as those of ordinary children. The umbilical cord was attached to the middle region of the abdomen common to both children. The umbilical artery was larger than ordinary—the veins as usual. There were two proper lower extremities and a mal-formed middle leg with seven toes. Each child had its own sacrum on which the vertebral column rested, and from which a normal os innominatum proceeded on one side, the pubis of one child forming a symphisis with that of the other. On the other side, between the two sacra, was situated an abnormal ilium, or rather a bone, as of two ilia united, from the lower part of which hung the third lower extremity, attached by ligaments so that each child had a normal leg and proper pelvic bone, and a third ilium and deformed middle leg were common to both. This leg, on dissection, contained a femur, a tibia, thick and contracted, bent to a considerable angle about its middle—the usual bones of the foot, and seven bones of the metacarpus, six of which formed a row, and the seventh, which was the largest, supported two toes, united as by a firm web. The sex was male—there was a penis and scrotum, but no testes therein.

Internal Appearance.

There were found two pair of lungs, two sets of ribs and vertebræ, two sterna united at the cartilages, two hearts, the left being the smaller, abnormal in the position and the distribution of its great vessels. Those of the right side were normal. There were two livers blended somewhat anteriorly, two spleens, two stomachs, two duodena, two jejuna, and two ilea, which united at the latter end to form one canal, one colon, cœcum, and rectum, two kidneys in the left side, and one, very large, on the right. From these, ureters pro-

ceeded to the bladder common to both. The distribution of blood vessels was exceedingly anomalous in the cavity of the abdomen. The testicles had not descended into the scrotum.

Can these multiform departures from the normal body be attributed to any law governing their production, or to any accidental external influence. The ancients laid great stress on the power of the imagination of the pregnant woman, to which was attributed the production of all nœvi and other deformities. Of later days the fashion has been to decry all such hypotheses, yet to substitute no reliable explanation. That a severe nervous shock in the mother may exercise some power in the arrest of development of the fœtus is by no means improbable in some few instances, but there are cases where an over-development (so to speak), rather than an arrest of the process, seems to have taken place. Moreover, the cases of transposition of various organs remain to be accounted for. The contingencies which must all occur during pregnancy, in order to a proper healthful gestation, are as little known as the laws of development of fœtal life, and the absence of any of the former, which may vitiate the proper action of the latter, are subjects in the investigation of which but little progress has been made. By a careful collection of these anomalies, and other kindred subjects, it may be that some insight can be eventually gained, into the mysterious laws to which the growth of the embryo is subject, and the accidents by which their operation is suspended or thwarted. At present it is far easier to negative the various theories put forth from time to time on the subject, than to suggest any proposition suitable to explain the existence of all—of even a majority—of the ascertained malformations.

R. G.

PART SECOND.

AMERICAN AND FOREIGN INTELLIGENCE.

ART 1.—*The Probabilities of Contagion in Fever.* By Dr. STOKES.

"What I wish you to believe, gentlemen, is, as I have already stated, that our Fever is both epidemic, as proceeding from general but unknown causes, and also contagious; and no one can deny that causes which would act in depressing the health and moral energies of a people, by rendering them less able to resist the effects of disease, would increase the general mortality. The influence of bad ventilation and overcrowding I need not here dwell on; nor, on the other hand, need I occupy your time with more arguments to establish the truth of the doctrine of contagion. You will find in the writings of Dr. Christison, and Dr. Graves, convincing evidence on these points; and let me again refer to the great argument drawn from the liability to contract fever which has so long been observed among the medical practitioners of Ireland.

"Before I leave this subject, I wish to recall to your memories the calculation made by Bishop Brinkley, the results of which were so strongly in favor of the communicability of typhus. They went to show, that an overwhelming number of chances would exist against the occurrence of a certain event, such as the sickening of eleven out of twelve of a family, in a particular district, if the sickening of one did not promote that of another, or, in other words, if the disease were not contagious. On this subject, I have had the honor of receiving a letter from Dr. Paget, of Cambridge; and I would not be doing justice to you, or the question generally, if I did not state the objection made by this eminent physician, as to the soundness of the conclusions in favor of contagion, which appear deducible from these calculations. Dr. Paget observes, that the form in which the problems are stated, excludes the consideration of all local influences, except contagion; in this he is perfectly correct, for the elements of local influences were not presented in the questions given to Dr. Brinkley for solution; and for this reason, that the framer of the questions was not a believer in the effect of these local influences in causing

fever. Yet we must agree with Dr. Paget, that had this element of local influences, besides contagion, been included, it must necessarily have diminished, by whatever was its real value, the overwhelming result which the calculations, as they now stand, give in favor of contagion. But, even if we give a value to this cause which would diminish the numbers—say, even by 100,000,000—it still would leave the chances against the event, on the non-contagion theory, not less than 89,000,000 to 1,—a result more than amply sufficient to confirm the doctrine of the communicability of the disease. But even Dr. Paget himself admits, that, taking the case of the second calculation, if the consequence of these deductions on the score of local causes, were to reduce the probability of 300,000 to 1 to that of 1000 to 1, yet this latter probability would be sufficient to carry conviction to the mind of any candid person. He, however, observes, that we have unhappily no means of estimating numerically the requisite deductions, no means of calculating the effect of noxious exhalations from decomposing organic substances, of bad food, and other assignable causes, which have been supposed capable of promoting the spread of fevers; and he properly remarks, that Dr. Brinkley's results include, with contagion, the possible effects, not only of known, but also of all unknown causes, which may make an individual household more liable to fever than their neighbors. I entirely agree with Dr. Paget, that, as an argument for contagion, the results of Dr. Brinkley's calculations must be taken minus the effect of local influences; and I feel indebted to him for having drawn my attention to this point, and to the importance of noticing it, when the numerical value of these results is considered. My opinion, however, as I have already stated to you, is that, in Ireland, local influences have not that great importance either as generators or promoters of fever which some believe them to have, and, consequently, the deductions to be made in favor of these causes would not greatly weaken the general results. We must believe, that the causes of fever, independent of mere contagion, are various in the extreme, that they are probably numerous and complicated, acting in combination rather than singly, and varying in their effects, not only in consequence of their own properties and combinations, but also as regards the condition of the individual in whom fever is developed. To this point I have already alluded in a former lecture, in speaking of the influence of the same contagion on individuals of different countries. And Dr. Paget, in observing that our pathology

of fever is not so perfect as to assure us there are no predisposing causes besides those which are commonly allowed, notices the comparative immunity of infants and persons above forty years of age from the typhoid fever with rose spots, and affections of Peyer's glands, and as indicating that the constitution of the individual is an element in the question."—(*Clinical Lectures on Fever, No.* 6.)

Epidemic changes in the local affections of Fever.

"In their seat, if not in their nature, these affections are observed to vary in different countries. On the Continent—at least in France, and in a large portion of Germany—the frequency, and, probably, the preponderance of the secondary disease of the intestines, is a matter that must be admitted. So remarkable, indeed, is the predominance of the tumefaction and ulceration of the mucous glands of the intestine in France, that Andral, in the first edition of the *Clinique Médicale*, described fevers under the general head of diseases of the digestive system; and yet Andral was no blind follower of Broussais. In Ireland, however, we do not find this remarkable preponderance of the secondary diseases of the digestive system; but when I state this to you, I wish you to understand and adopt this principle, that all statements as to the anatomical characters of fever, as it prevails here or elsewhere, are to be accepted only so far as they apply to the prevailing epidemic. And, although it is true, that on comparing our typhus with the French typhoid fever, this difference becomes apparent, that the existence of follicular disease of the intestine is almost the rule, and its absence the exception in the latter affection, while, in the Irish typhus, this condition of the intestine is rare; you must, however, bear in mind that, in Ireland, and in our own time, we have had a great epidemic of what was certainly typhus fever, in which the condition of the intestine accurately represented that which is found to prevail on the Continent.

Indications for treatment in Fever afforded by the state of the Heart.

In one of the Clinical Lectures on Fever, delivered by Dr. Stokes, in the Meath Hospital, Dublin, and reported by Dr. Lyons, are these very important and practical remarks:

"I have sometimes observed that students were under a misapprehension about the doctrines which we have long held in this hospital with respect to the condition of the heart as a guide for the use of wine. They have come to the erroneous opinion that we are only to

give wine where we find the want of the first sound of the heart, and that we are not to give wine where the heart is acting well. This is a mistaken view of the matter. What we have established as to the state of the heart in connection with the effect of stimulants, is simply this,—we have ascertained that the efficacy of stimulants is often directly as the debility of the heart. It has been also ascertained that the power of bearing stimulants, their effect upon the nervous system, their good effects on the general condition, are directly as the weakness of the heart. We may lay down as a rule, that there are three conditions of the heart to be looked at by the practical man in the treatment of fever. In one, we have an excited heart—a violently excited heart all through the case; and this heart may be excited and violent, although the symptoms be those of extreme adynamia, although the surface be cold, the breath cold, and the pulse so feeble that it cannot be discovered. Nay, the heart may act with great force for several days, aud yet there be no pulse at the wrist. This is one case. In the next case, we find exactly an opposite condition, in which the systolic force of the heart is diminished. This is shown by loss of impulse of the heart, by diminution of the first sound, and, in certain cases, by extinction of the first sound of the heart while the second remains. This is a case which calls for wine, and in which you should give it: it is a case in which, in the vast majority of instances, wine will agree with the patient. There is a third set of cases in which the heart does not seem to be implicated at all in the course of the disease, in which, notwithstanding the existence of the most extraordinary group of symptoms affecting various organs, the heart, in the middle of the storm, seems to be in a state of calm and gentle quiet. If we compare these three sets of cases with a view to prognosis, we may arrange them in this way. The case of excited heart all through, with feeble pulse and with adynamia, is unquestionably the worst case. There is no worse symptom in fever than an excited heart. It is especially a bad symptom when, with that excitement, we find a feeble pulse. The next will be the case of sinking of the heart; and the most favorable case is that in which, as I said before, the heart seems to escape disease. But you are not to suppose, that because you have an excited heart, you are not to give wine if the symptoms of the patient require it; and you are not to suppose that, because the heart is not affected at all, you are to withhold wine if the general symptoms of the patient require it. You are not to found your exhibition of wine

or stimulants upon any one thing; you are to take the general state of the patient into consideration. What we have done is to discover an intelligible practical rule which will guide you in the use of wine in certain, I think in many cases; but you are not to suppose that because this man has a clear first sound at his heart, therefore you are not to give wine. You are not to suppose that because the heart is safe you can do without wine."

The great importance of Nourishment in Fever.

I wish also strongly to impress on you the great importance of the use of other forms of nourishment in this disease; for we must not only keep up the nervous energy of the system by wine, but we must support nature by food. There is no mistake more fatal in fever than the withholding of food. I was early taught the importance of the use of careful nourishment in fever by my friend and colleague, Dr. Graves. I remember once, Dr. Graves, when speaking of the necessity of the use of nourishment in fever, made use of these words: "If you are at a loss for an epitaph to be placed on my tomb, here is one for you,—*He fed fevers.*" In addition to the prejudices with which the inflammatory doctrine imbued so many minds, with respect to the use of food in fever, there was a new set of arguments raised against it, in consequence of the experiments of an American physician. I allude to the case observed by Dr. Beaumont, and so often quoted since. In this remarkable case, various medical substances and articles of food were introduced through an external fistula into the stomach, their effects being noted, as also the conditions of temperature, vascularity, &c. A set of results were subsequently published in connection with the action of the stomach upon food. One of the results stated to have been thus obtained was, that the existence of the state of fever altogether suspended the process of digestion. Here was a statement which had the appearance of being the result of strict observation. It influenced a number of young men; but did it influence those who had once been in charge of a fever hospital? Not at all; because those men knew very well that, no matter what Beaumont might say about the stomach not digesting when the patient had fever, in thousands of cases patients in fever digested remarkably well, required food, and derived benefit from it. In a large number of cases of typhus fever, the stomach has an excellent power of digestion; and, I believe, if we were bold enough, we would find that many articles of

food usually forbidden to fever patients might be given to them with safety. A curious incident was related to me which shows that the stomach in fever is capable of digesting even a rather coarse article of food. A lady who had been recently married was attacked with extremely severe petechial fever; she was covered with dark-colored maculæ, and the disease had run to about the twelfth or thirteenth day. She was attended by several eminent physicians. Her case was an extremely bad one, and her life was all but despaired of. She was violently delirious. Her husband had occasion to leave the house on some business. At the period of the dinner-hour of the family, the servants were cooking a rump of beef and cabbage, and the odor of it filled the house. In her delirium she called for the beef and cabbage; she was then, you must understand, in severe fever, and covered with maculæ. Her sister, who was attending her, believing she was dying, thought it only right to indulge her, from the feeling that it was right to indulge the request of a dying person. She proceeded to the kitchen, and, as soon as the beef was boiled, cut a very large mess of beef and cabbage; and this was brought up smoking hot to the lady's bedside, when she devoured it with great avidity. Shortly afterward her husband came in, and was told what had happened. He became terrified, and sent for physicians in every direction. Four or five assembled; time was pressing, and every one agreed that something should be done. At length the late Dr. Harvey, a practical physician of the very first class, arrived. He was laid hold of by the agonized husband, forced up stairs, and his opinion earnestly requested. At that time the stomach-pump was not in fashion, but every one agreed that something decisive should be done, that an emetic should be given, or some extraordinary effort made to get this mess of beef and cabbage out of the lady's stomach. When Dr. Harvey went to the bedside, he found the patient in a tranquil sleep. He turned round, and when anxiously appealed to what should be done, he said: "You had better wait till she wakens; let her sleep it out." She slept for four or five hours; awoke wonderfully better, and on the following day was out of danger. I do not give you this case to induce you to feed your patients with salt beef and cabbage in fever, but it is very important, as showing that in typhus fever, with maculæ, the stomach is capable not only of digesting such a coarse article of food as salt beef, but that even such food may have a good effect. —(*Clinical Lectures on Fever, No.* 5.)

The non-inflammatory nature of the ordinary Bronchial Complication Typhus.

"You will commonly hear it said, that this or that patient in typhus has got bronchitis; and if we were to be guided by physical signs alone, such a statement would seem to be correct. But I wish you to believe that the essence of this affection is not bronchitis, but rather a special condition of the air-passages, secondary to the typhus fever, the result either of the typhus deposit or of the vascularity with turgescence, of which I spoke in a former lecture. If bronchitis—that is to say, if inflammatory action supervene—it must be considered either as reactive or specific. I am anxious to impress this upon you, because there are still many practitioners who hold that the physical signs of bronchitis are sufficient to establish the existence of inflammation. Now, I do not know any characteristic difference between the physical signs which may occur in ordinary idiopathic bronchitis, and those which present themselves in typhus when the air-tubes are engaged. In both you have sonorous, sibilant, mucous, and crepitating râles; and yet the two diseases are pathologically distinct. Observe, that whatever will diminish the calibre of the tubes, whether it be deposit, typhoid, congestion, or true inflammation, will give râle; whatever causes secretion, whether it be true inflammation, or something the very opposite of inflammation, will give you râle. We have, as I said before, in typhus, the physical signs which are observed in true bronchitis; but beware how, in any given case of fever, you conclude from their presence that the patient has true bronchitis. In certain cases there may be reactive irritation; but never forget that the typhoid disease alone, without any inflammation whatever, is competent to produce all the signs of bronchitis. Why do I urge this so much on you? Because I wish to avail myself of every opportunity of removing from your minds the erroneous doctrines of inflammation which have been so long in vogue. We are greatly influenced by names; and though I do not suppose that there are many who would treat a case of the bronchial affection in typhus with the same reducing measures which they would employ in the idiopathic disease, yet I am sure that the idea of these signs proceeding from inflammation, makes many of us who have not yet unlearned our early teachings, timid in the use of stimulants.

"We find that this bronchial disease runs a course exactly analogous to that of the other secondary affections of typhus. It comes

on insidiously, or, as I said before, silently; it gradually advances to its maximum, and sometimes increases to that degree that the patient dies by asphyxia. This is often the case when the disease has not been recognized at an early period. It is in almost all cases preceded by the symptoms of typhus for several days. I think in the best-marked cases it first shows itself about the fourth or fifth day of the disease; but it may supervene at any period of the case. It subsides spontaneously. You will have abundant opportunities of observing the following curious circumstance in the subsidence of this disease, either when the affection runs its natural course, or when it has been necessary to treat it specially. In the true idiopathic bronchitis, when the patient is placed under treatment, we observe the disappearance of the râles to be gradual; they are less intense and less complicated day by day; and this goes on probably for a week or ten days, or it may be a fortnight, before the last shade of râle disappears. In the typhus affection, on the contrary, you will often observe that the most extensive, intense, and complicated râles disappear as if by enchantment, leaving the respiratory murmur perfectly pure. This sudden disappearance of the physical signs is only an argument among many to show their non-inflammatory origin. Nothing can be more remarkable than this; it seems analogous to the sudden disappearance of the eruption of scarlatina from the skin. You may often see this eruption lasting for three or four days, and then suddenly disappearing, leaving the skin white and pure. Consider the case of the lung in the same way, and in place of the scarlatina eruption, take the secondary bronchial disease or eruption, if you will, and you can understand the occurrence of a similar change. Mind, I do not say this happens in all cases; and I suppose that for its occurrence, it is necessary that there shall have been little, if any, reactive irritation. And, as I said before, we see it in cases not only where the disease has been little, if it all, interfered with by treatment, but in others in which we have used such remedies as dry cupping, counter-irritation, and various stimulant medicines. Here the practitioner is often surprised at the rapid and complete success of his treatment, and may take credit to himself for bringing about a change which was, to a great degree, at all events, induced by the operation of the law of periodicity.

"In the next place, we find that the best treatment in such cases is the stimulant. The mere circumstance of a patient having or presenting the most intense signs of bronchitis in typhus fever does not

by any means warrant us in bleeding him, in reducing him, in exhibiting tartar emetic, or in withholding wine. Nothing of the kind; the best treatment for such cases is the free use of wine, of ammonia, turpentine, bark, and such measures.

"Another argument is drawn from this interesting fact, that in a large number of cases of softened heart in typhus, we find a combination with the bronchial disease, and it is quite fair to conclude, that the conditions of the lung and heart in these cases are similar. The practical conclusion, then, to be drawn is, that the physical signs of bronchitis in a case of maculated typhus fever should not make you conclude that the patient had bronchial inflammation; and therefore you should not treat the case as such.

"There is a remarkable case of fever which is not at all uncommon in this country, in which we have an alternating disease, as it were, between the abdominal and the pulmonary organs in typhus fever. This is a very bad form of fever—one of the worst. We find that to-day, we shall say, the chest is greatly loaded, that you get no good respiratory murmur; there are most intense râles, and all the symptoms of extensive disease of the lung. At this time, the belly is soft; it is not tender on pressure: and there is no diarrhœa. Things go on for two or three days, when we find the belly to be swollen, tympanitic, tender on pressure; there is diarrhœa; and on applying the stethoscope to the chest we find it comparatively free, and the râles either gone or almost altogether gone."—(*Clinical Lectures on Fever, No.* 8.)

The Relative Frequency of Chest and Head Symptoms in Fever.

"With respect to the question of the comparative frequency and importance of the pulmonary as contrasted with the nervous symptoms in fever, as it affects the lower and upper classes in this country, my decided impression is, that taking the experience of the last twenty-five years, the secondary bronchial, or, to speak more generally, the pulmonary complications are much more frequent and dangerous in hospital than in private practice. It is not easy to explain why this should be so, but certainly we find a greater preponderance of nervous symptoms in the typhus fever, as it affects the upper classes of society, than in cases of the disease as we meet with it in hospital; while in hospital practice the nervous symptoms, though we cannot say that they are absent, seldom require any very special interference on the part of the practitioner. No doubt we meet with

coma and subsultus tendinum occasionally, but that predominance of nervous symptoms in the early periods of typhus, which is so common in the upper classes of society, is but rarely seen in our wards; and if you will only reflect on the simple fact, that we so rarely have occasion to shave the head among our hospital patients, you will fully see the truth of what we say. Remember, too, how many cases we have had in which, while all the symptoms of typhus—such as prostration, weakness of the heart, eruptions of maculæ and petechiæ, and well-marked secondary diseases of the mucous membrane of the intestines—were present, while the patients' mind remained quite unclouded, and while no symptoms occurred calling for any special measures directed to the head. The typhus of Ireland, then, is not characterized, as Dr. Lombard has described it, by a preponderance of cephalic symptoms, at least when it occurs in that class from which he supposes the best specimens of the disease to be drawn. He is incorrect in his statements about the predominance of cephalic symptoms as when he says that the absence of follicular ulcerations of the intestines is a distinctive mark of Irish typhus.

"In the typhus fever of the upper classes in this country the nervous symptoms are generally much more aggravated and developed at an earlier period; and it may be that this preponderance of the nervous symptoms, this tendency to affections of the brain in one class, even though these affections be principally neurotic, is a cause of the comparative exemption of such cases from the secondary bronchial disease. You will find as you advance in the study of general pathology, plenty of examples in which diseases of structure or of deposition are suspended or replaced by purely nervous affections. Explain it as we will, the general proposition appears true, that the nervous symptoms, comparatively speaking, are but slightly developed in the fever of the lower classes, while those indicative of nervous disease are much more prominent; and conversely that in the upper ranks symptoms indicative of irritation of the mucous surfaces are less developed, while the nervous symptoms are severe; and this, perhaps, may throw some light upon the doctrine which has been long held by many, that the mortality of fever is greater in proportion as we ascend in the scale of society."—(*Clinical Lectures on Fever*, No. 7.)

Quickness of Pulse after Fever.

"There is a case in the small fever ward to which I would wish to direct your attention. Although the patient has convalesced after a long fever, and is now gaining flesh and strength, we have found that the pulse continues rapid. Now, this is a circumstance which must always excite suspicion. In this patient the signs of abdominal and pulmonary lesion have disappeared, as well as the characteristic expression of what may be termed the condition or state of fever,—yet, we find that his pulse does not correspond with the signs of improvement in all the other functions. It was suggested by Laennec, that the rapidity of pulse in patients after fever might depend on softening of the heart; but we shall see by and by, that the true typhous softening of the heart, so far from inducing rapidity of pulse during convalescence, has much more frequently the effect of making it slow; not only slow as considered with reference to the condition of health, but actually falling below the ordinary standard. * *

"These cases of quickness of pulse are of two kinds. In one class the pulse has never lost the rapidity it attained during the fever; or it has, perhaps, come down fifteen or twenty beats in the minute, and its rate then remains stationary. In the other cases the pulse, which had become quiet, rises to 100 or 120, or even higher, and remains at that rate for days together, without our being able to detect any cause for this increased rapidity. This, I think, is the worst case of the two; at least, it appears more often to indicate a new pathological change.

"The local diseases which have been found most frequently to attend this condition are of two kinds; one of them is tuberculosis —the deposition of tubercles in the lungs and other parts; the other is the existence of a secondary reactive inflammation in the mucous glands of the intestines. To this subject Dr. Cheyne long ago drew attention, in speaking of the imperfect convalescence in typhus fever; and he gives several cases in the Report of the Hardwicke and Whitworth Hospitals, in which patients had recovered well from typhus fever; had, to all appearance, regained a certain degree of strength; had regained their appetite: but they showed no disposition to leave their beds; the pulse gradually got quicker and quicker; the belly swelled; diarrhœa came on; and the patients died with symptoms of disease of the intestinal canal. Upon dissection, extensive ulceration of the mucous glands was found in the intestines.

These are the two most common of the local diseases which you should suspect when you have a patient who has gone through a long fever with the pulse continuing or becoming very quick.

"But now suppose that you examine such a patient with great care. You percuss his chest; you examine the state of his respiration in every way, and you cannot satisfy yourself that there is any disease in his lung; and you will recollect what I mentioned to you at our last lecture, that in most cases of this tuberculosis after typhus there is great constitutional suffering. Well, you may make up your mind, from the absence of all these signs, that the patient is not becoming tuberculous, at all events. When you proceed to examine the abdomen, you will find, perhaps, that he has a good appetite; that his thirst is gone; that the belly is hollow and soft, and there is no tumefaction of it; that there is no tenderness on pressure anywhere; no throbbing of the abdominal aorta; no tendency to diarrhœa—in fact, no one symptom of disease of the mucous membrane of the intestine. And yet, as in the case above stairs, you have a pulse with this unpleasant degree of quickness. I rather think that this man's pulse is now quicker than it was on the twenty-first day of his illness; and it makes me extremely uneasy about him. Now, gentlemen, suppose that you did not find either disease of the lung or disease of the abdomen, what should you suspect? Generally, in those circumstances, you may suspect that the patient will be attacked by phlegmasia dolens; for we have seen a considerable number of cases in which, after fever, where the pulse continued rapid, this disease exploded. It is, I think, more likely to occur in the non-petechial than in the petechial cases; it is more likely to occur in the long fevers than in the short fevers; it is very liable to arise in patients who have had a fever running on beyond twenty-one days, or thirty days, or forty days. In these patients, after the true symptoms of fever have subsided, they remain with a rapid pulse, and, probably, in a week or ten days, symptoms of phlegmasia dolens come on; and the disposition to this venous inflammation is very curious in them, for you will often find that the patient has two or three distinct attacks of it. It may affect one leg, and you will get the patient through that attack; still the pulse does not regain its natural rate. After a week or ten days, the other extremity will be attacked: and it is even possible that a third seizure may occur, as it were, a relapse of the disease in the part first affected; and in this way patients will go on laboring under these attacks and their

consequences for months together. In most instances, however, the patients recover. In most of the cases I have seen, of this acute phlebitis consequent upon fever, there was distinct notice of the invasion of the disease—that is to say, the patient was attacked with pain in the calf of the leg. He is attacked, say in the course of the night, with pain in the calf of the leg; and when you come, in the morning, you find him exhibiting all the characteristics of the disease—a large swelling, pain on pressure, and all the other symptoms. Sometimes you find a cordy state of the superficial veins; at other times not. When you can feel a deep-seated vein, you will sometimes find it in a hard and cordy state.

"I think it right to warn you of these curious circumstances; for I am sure that in the course of your practice, you will often be in this position, that you will have a patient recovering from fever, and going on in every respect well, except that the pulse does not come down. The rule, then, is, that if the most minute examination fails to detect disease in the great viscera, you may expect the occurrence of phlebitis.

"The term, phlegmasia dolens, under these circumstances, is not always applied correctly; for the disease is not always painful. We have seen a few instances in which the discovery of the local affection was entirely accidental. Of course, you will say that I am prophesying that the patient above stairs will have phlegmasia dolens; all I say is, that he is in that state which would justify you in suspecting something of the kind.

"I have mentioned the rapid deposition of tubercle, ulceration of the intestines, and phlebitis of the extremities, as the diseases we have found to occur most commonly in these instances of unaccountable quickness of pulse after fever. Doubtless, there are many more examples of local disease arising under these circumstances; but the general rule will hold good, that this symptom foreshadows a disease, which, though at first latent, will before long become manifest. These diseases are generally attended with much irritation, and the condition of the patient is rather one of irritation, or inflammation if you will, than of essential fever. And this is one of the illustrations of a circumstance often observed by the clinical investigator, namely, the change of character of disease, locally and constitutionally, in the same patient, and within a not very extended period. The typhous condition, generally considered, will change into a different state. The essential or general morbid state will disappear, and a

local irritation, with its symptomatic fever, becomes the prominent malady. Nay, you will sometimes find that the very condition of a local disease, formed during the first, the typhous or essential period of the disease, will itself change, and take on the character of what is termed by some a 'healthy inflammation.' You may sometimes see this well illustrated in that terrible disease, accompanied by purulent deposits, in many of the articulations. The patients may throw off the typhoid state which attends the earlier periods of the disease, and then the affection of the joints seems to change in its nature, and take on the characters of ordinary arthritis. I have only seen this, however, where one or two of the larger joints had been effected with the primary disease; and it was most remarkable to witness the changes both in the constitutional state and the local affection. It was no longer necessary to use general stimulation; it was no longer improper to employ local antiphlogistic measures."—(*Clinical Lectures on Fever*, No. 10.)

ART. II.—*Lectures on the Spinal System and its Diseases, delivered at the Chatham Street School of Medicine, Manchester.* By MARSHALL HALL, M. D., F. R. S. L. & E., Foreign Associate of the Imperial Academy of Medicine of Paris, &c.

Dr. Marshall Hall then addressed the crowded audience as follows:

GENTLEMEN: I have accepted, with much satisfaction, the invitation of your able teachers, to expound to you the Anatomy, Physiology, and Pathology of the Spinal System. In doing this, I shall avail myself of experiment and reference to clinical observation. I wish to demonstrate to you the immediate and intimate connexion between physiology and practice. You may indeed regard these lectures as a specimen of a work which I am preparing for the press, designed specially for the medical student, to be entitled "PHYSIOLOGY *in the Laboratory and the Clinical Ward.*"

I propose, in that work, to effect the separation of mere empiricism from medicine forever.

Physiology was divided, by the illustrious Bichat, into two systems, or sub-systems,—*the animal and the vegetative.*

The nervous system has, in a correlative manner, been divided into *cerebro-spinal and the ganglionic.*

Both these divisions are defective. There is a *third* sub-division

of the nervous system, hitherto undetected, which forms an essential link with the other two, and which I have designated *the Spinal.*

Observe this frog. You are all familiar with its natural movements. I divide what was termed the cerebro-spinal system just below the occiput.

I stop for a moment to call your attention to a most interesting phenomenon. I seize one of the toes of a posterior extremity between my thumb and finger, making a little gentle pressure and movement. No effect is produced. In a minute or less, you will see how different the result will be. The animal is in the state of *shock;* just such a shock as we observe in practice, as the effect of a violent fall from scaffolding, or a crushing accident from machinery. I repeated the experiment. You now see the manifestation of returning power in energetic movements.

This experiment, repeated with care, would afford the means of investigating the phenomena of shock, and of a principle of practice. For example: after a violent comminuted fracture, is it better to amputate immediately or after the lapse of a certain interval of time?

I again call your attention to my experiment. Observe how energetic the movements of the frog now are on exciting the skin of the foot; how similar, too, to ordinary voluntary motions! Who would not be beguiled into the conclusion that in this animal, sensation and volition still exist?

Nevertheless, if my experiment has accurately divided the cerebrum and cerrebellum from the medulla oblongata, and if I induce quiet in the animal by gently controlling its movements, as you see, it will never move spontaneously more! Nay, though I place it in a position which, if sensibility remained, *would be* the most painful, yet, quiet once induced, and *all* external excitation avoided, it will never move again. It might be left in such a position, and if so protected from excitement, it would be found the next day in the same position still.

But again I rub the toe between my thumb and finger, and again it moves; it jumps, and it crawls; the latter movement consisting, in fact, in a series of movements induced by the renewed contact of points of the cutaneous surface with the surface of the table.

What is the *rationale,* what the relations, of these singular phenomena?

Gentlemen, nearly a quarter of a century ago I was engaged in

the investigation of the circulation of the blood in the batrachian reptiles; I had been examining the pneumonic circulation in the *triton;* the animal lay on the table; I removed the head and the tail. On touching the latter by the point of a probe, it coiled up! I asked myself the questions which I have just proposed to you. From this simple fact and observation have resulted the discovery, the elaboration, and the application of the SPINAL SYSTEM—that system which, as I have said, I am about to expound to you in these lectures.

I again recur to my question, what is the *rationale*, what the relation to *life*, to anatomy, and to physiology, of this phenomenon? I have removed the cerebrum and cerebellum; it does not therefore depend upon these. But I proceed further; I now remove the whole of the internal viscera, and, with them, the whole of the ganglionic system. Still the movements continue as lively as ever!

Observe this physiological preparation well. There is not in the Hunterian Museum a preparation more replete with the deepest interest. It is the demonstration that when the centre of the cerebral system and when the entire ganglionic system are removed, there still remains a *third* system, independent of each and of both, *sui generis*, autocratic!

Place this specimen of the decapitated, eviscerated frog in your museum—the demonstration of the distinct and independent spinal system—in memory of this day!

Do not be disconcerted that I show you these things in so humble a creature. *All* physiology exists in the caterpillar or the butterfly, if we could only detect it. The least of God's works is infinite. I began by stating to you that hitherto anatomists and physiologists had divided the nervous system into the cerebro-spinal and the ganglionic. I have analysed these, and I have demonstrated to you, that in the midst of these two there is a *third* system. As the chemist detects, in a mineral hitherto regarded as consisting of certain elements—say silver and gold—a new element, platinum, so I, in the midst of the celebro-spinal and ganglionic nervous systems, have detected a new element—the *spinal;* and of how great moment this is I must proceed, without further delay, to unfold to you.

I revert once more to this interesting preparation: the cerebral centres and the ganglionic system are removed; what remains? what is its anatomy, its principle of action, its physiology, its pathology, its therapeutics? what its relation to *life* and *death?*—questions of the deepest interest.

In the first place, observe me now destroy, in this decapitated, eviscerated frog, by means of this needle, the spinal marrow. Now all is still! I irritate the toe in vain. I wait in vain for recovery from shock. All the interesting phenomena formerly manifested are extinct! They depend, then, on the spinal marrow, *their* spinal centre!

In the next place, I take this preparation, which is similar to the former one, viz: without cerebral, without ganglionic systems, and I denude the lumbar nerves. The excited movements in both lower extremities are, as you see, perfect. I divide this *right* lumbar nerve; the excited movements in the *right* leg, and in that leg only, are extinct!

The excited reflex movements depend, then, not only on the spinal *centre*, but on the nerves connected with that centre.

You observe the phenomena still perfect in the *left* leg; I remove the skin from the foot; the excited movements are again extinct. They depend, then, in this instance, on the integrity of the integuments of the part to which the excitation is applied. In these integuments, in fact, resides the *origin* of those nerves on which these excited reflex actions depend.

But now, gentlemen, I must beg your best attention whilst I explain more particularly the nature and forms of that nervous structure which constitutes the spinal system.

If I either strip off the skin, or destroy the spinal marrow, or divide the lumbar nerve, the phenomena cease. They depend, then, on the *origin* and on the *course* of certain nerves, and on their spinal *centre*.

But a little more minutely: If I remove the origin of this structure, by removing the integument; or if, within the spinal canal, I divide the *posterior* root of the spinal nerves; or if I destroy the spinal marrow itself, or, if I divide the *anterior* roots of the spinal nerves; or, if I divide the nerves in any part of their course *to* or *from* the spinal marrow, I annihilate all reflex phenomena.

Here, then, is a new *Demonstration:* all reflex actions depend on an *in-going* nerve, with its *origin* in the tissue excited; on the spinal centre; and on an *out-going* nerve, with its *termination* in the muscles. These constitute a *nervous Arc*, consisting of parts *essentially* linked together; *a new kind of Anatomy*, established and demonstrated for the first time.

Each *special* excited, reflex, or diastaltic action (so I have designated it, because it is excited *through* the spinal centre), has its *special* diastaltic nervous Arc. Of these *Arcs* there is an extensive *series* in the animal economy. Together with their continuous *centres*, they constitute the spinal system of connected eisodic (or in-going) and exodic (or out-going) nerves.

Gentlemen, no facts in chemistry or physics are more demonstrable than these; none more valuable in their relations respectively; whether we contemplate life, disease or death, the spinal system becomes now our constant guide.

Let us now, gentlemen, consider what we have within the spinal theca. The sensations of the hands, feet, &c., imply an uninterrupted connexion between those parts and the cerebrum, upwards. The acts of volition of the hands, feet, &c., imply a similar uninterrupted connexion downwards. There are, then, *two* nervous conductors, whether distinct fibres, or whatever they may be, along the spinal marrow, which, in this sense only, may be viewed as a *spinal Chord of nerves*, of sensation, and of volition.

But when the cerebrum is removed, when all sensation and volition are extinct, if we excite the skin of the lower extremity in the frog, the anterior extremity is moved, and *vice versa;* phenomena which cease either on removing the spinal marrow, or dividing the lumbar nerves. How then are we to view these structures?

The lumbar nerves convey sensation and the mandates of volition to and from the cerebral centre, when that remains; they convey the eisodic excitor influence, and the exodic excitor influence, when that centre is removed. The spinal centre is the general key-stone to the diastaltic arcs.

As certainly as the lumbar nerves in the frog convey sensation and volition, so certainly do they convey these other two influences. If Sir Charles Bell has proved that such nerves are *double*, I have proved them to be *quadruple*.

The posterior roots of the intra-spinal nerves are not only sentient, but eisodic excito-motor; their anterior roots are not only conveyers of the influence of volition, but of exodic excito-motor. There is precisely the *same kind* of proof of one of these functions, as of the other. The spinal marrow; the lumbar nerve in the frog; the sciatic in the human subject; are each and all *quadruple* in their mode of action; I do not say in their structure.

There is an additional fact or series of facts: the spinal marrow is the conductor of the influence of emotion, and of that of undue acidity in the stomach, when these affect, the first directly, the second in a reflected manner, the action of the heart—a subject requiring new and careful investigation.

Enough has been said, then, gentlemen, to convince you that the spinal marrow is no mere chord of nerves. Enough has been said to show you that it is intimately connected with the ganglionic system. And especially, enough has been shown to prove to you that it is the great centre of a series of actions in the animal economy.

You will be still more impressed with the importance of the spinal system, when I tell you that, besides the phenomena which I have brought before you, it is the nervous centre and agent in *all the functions of ingestion and of egestion* in the animal economy, in *the entire class of Convulsive Diseases* in pathology, in the action of a certain *class of Remedies*, and in the whole of that department of medicine denominated *Obsteterics!*

Having made these observations, which relate principally to the *Anatomy* of the spinal system, I must now call your attention to its *principle of action.* This I have proved, by a series of the clearest experiments, to be the *vis nervosa* of Haller. But this celebrated physiologist, Bichat, and Professor J. Muller, all laid it down as a *law*, that this power acts in the direction *downward* only. As long as this idea prevailed, it is obvious that it *could* have no application to *physiology.* For how could the spinal marrow or an exodic nerve be irritated physiologically? Its application was accordingly limited to pathology.

By a series of experiments on the turtle, I proved the *vis nervosa* may act UPWARD and INWARD as well as OUTWARD and DOWNWARD, and then its application to physiology became evident.

If you remove the head and viscera in the turtle, and excite an eisodic nerve between the upper and lower part of the animal, ALL the extremities are moved. The influence of the *vis nervosa* has been INWARD, and UPWARD, and in all other directions, and not DOWNWARD only.

It now became easy to explain the various acts of ingestion, retention, egestion, and exclusion, depending, as they all do, on an eisodic excitement.

I may now, before entering on this topic, give you a general idea of the nervous system as we now view it.

The cerebrum, the cerebellum, and, in a certain sense, the medulla oblongata, may be regarded as the centre of the cerebral system, of the nerves of special sense, and of volition, of intellect and of the passions, of pleasure and of pain. By its means we are placed in relation to all that is *external, psychically.* By its means we perceive, by its means we seize and use, external objects.

There is good reason to believe that intellect is seated high, the emotions lower, and the faculty of pleasure and of pain lower still, in their general cerebral centre.

Below the centre of the cerebral system is that of the spinal system, and its analogue in the articulata, &c. The spinal centre includes the medulla oblongata and medulla spinalis. It may be divided into—

1. The Medulla Oblongata, the spinal centre principally of the acts of ingestion and of egestion, by which the preservation of the individual is effected, and especially those of deglutition, respiration, &c. With this centre, the pneumogastric, the diaphragmatic, &c., of such momentous importance in these acts, are essentially linked;
2. The Brachial Enlargement;
3. The Femoral Enlargement; and
4. What, I think, may be designated the *lower* Medulla Oblongata, the analogue with its nerves of the organs of generation, of the upper with its pneumogastric; and the spinal centre in the acts for the perpetuation of the species.

In each of the acts of ingestion and egestion to which I have alluded, there is the essential agency of a diastaltic spinal arc. The pharynx and larynx are excited by eisodic and exodic branches of the pneumogastric; the pneumogastric is the internal excitor of inspiration, acting through the spinal centre and the diaphragmatic and intercostals.

Similar diastaltic nervous arcs constitute the nervous media through which emission, conception, parturition, &c., are effected. In all these are nervous ORIGINS in exciting surfaces, an eisodic nerve, the spinal centre, an exodic nerve, and muscular terminations. The LAW OF ACTION, the mode of action, the channel of action, are in all identical or similar. All have the same object or objects—ingestion, retention, egestion, exclusion.

Can anything be more simple and scientifically beautiful?

The spinal centre, with its nervous arcs, and the muscles in which these terminate, are the dynamic agents which accomplish that "TOURBILLON" so eloquently described by Cuvier.

The ganglionic system relates to all that is WITHIN, governing the *peri*staltic actions, assimilation, the secretions, the excretions, &c.

But of these functions I must treat as cursorily as I have done of the cerebral system.

They are greatly under the influence of emotion, and of sympathetic or synergic action through the spinal centre. We have only to observe the effect of derangement of the stomach, or of eroded viscera, on the action of the heart, the skin, &c., in connexion with experiment, to arrive at this conclusion.

The experiments to which I allude are the following: Let the head be removed in a frog, the spinal marrow remaining, and the circulation be ready to fail; if we now crush the stomach or a limb with a hammer, the action of the heart ceases. Let the conditions be the same in another frog, with the addition that the spinal marrow is also removed: in this case, no influence is perceived, on crushing a limb or the stomach, on the action of the heart. Now, the difference is the presence or absence of the spinal centre. This experiment, however, requires careful repetition.

Now, gentlemen, I think I may hope that you have a sound knowledge of the spinal system, as far as it extends; for it is founded on experiments which your own eyes have seen, and which I think you will not forget.

As in the present lecture I have brought before you the Anatomy and Physiology of that system, I propose, to-morrow, to treat of its Pathology.

You will, if I am not mistaken, find your knowledge of the spinal system the key to the diagnosis of the diseases of the nervous system. It is to these, in some degree, what the stethoscope is to diseases of the heart and lung, the administration of a new kind of knowledge being as that of a new mode of observation; and if to know the disease is *not* half the cure, it *is* the whole of the treatment.

To-morrow evening, then, I propose to discuss the subject of the Diseases of the Spinal System.

LECTURE II.

THE PATHOLOGY AND MODES OF DEATH IN DISEASES OF THE SPINAL SYSTEM.

GENTLEMEN: As I stated at the close of my former lecture, I now proceed to bring before you the Pathology—the LIVING Pathology, the Physiology—of the Diseases of the Spinal System.

Already I have said that the spinal system is the source and seat of THE CLASS OF CONVULSIVE DISEASES. Among these, INFANTILE CONVULSION, PUERPERAL CONVULSION, but especially EPILEPSY, take the chief rank.

Epilepsy has received a variety of designations, such as *morbus sacer, morbus Herculeus*, expressive of its formidable character. It has long been regarded as the *approbrium medicorum*. Even Esquirol, in his excellent work, "Les Maladies Mentales," expresses himself in regard to it in the following terms:

"Les symtomes de l'epilepsie sont tellement extraordinaires, tellement au-dessus de toute explication physiologique; les causes de cette maladie sont tellement inconnues, que," &c.

I am almost afraid, after making these statements, to say what are my own views of this formidable malady, the result of my own labors. And yet I may not withhold the truth. I will therefore frankly tell you that I regard this *approbrium medicorum* as removed forever. I think no disease is better understood, in its physiology or pathology, since the detection and application of THE SPINAL SYSTEM—than EPILEPSY! It CONSISTS, in fact, of Direct, or Reflex Action, and dire Effects!

I am not blind to the many obscure points in the pathology of this and the other formidable diseases of this class. But in what department of medicine is there not much still left for the physician to discover? It is in their comparison with other diseases that I regard the inexplicable epilepsy as no longer inexplicable.

I must commence my explanation by drawing your attention to three most important physiological facts:

If we puncture or lacerate, or otherwise injure the cerebrum or cerebellum, or the cerebral nerves of special sense, in every possible manner, we observe NO RESULTS, NO PHENOMENA, no expression of pain, no excited movements.

The cerebral system in all its parts is, in this respect, *in*explicable.

But if we touch any part of the spinal system, and especially the spinal centre, with the point of a needle, ever so slightly, there are immediately excited muscular movements, spasm, convulsion.

The spinal system is, in all its parts—*excitor, excito-motor.*

These important facts constitute the foundation of all our knowledge of the diseases of the nervous system, and are the very source of all *diagnosis* in regard to them.

For the same facts, as is proved by clinical observation, hold in regard to the human subject.

By experiment and by observation, then, we are led to these conclusions:

No lesion of the cerebral system, limited to the cerebrum, CAN be attended by spasm or convulsion.

No structural lesion of the spinal system, short of destruction, CAN occur WITHOUT exciting spasm or convulsion.

If, in affections of the cerebral system, we observe spasm or convulsion, it is because it is NOT limited, in itself or in its effects, to the cerebral system. Thus, congestion of the centre of the cerebral system may, as in hanging, become extended to that of the spinal system, and then spasm or convulsion supervenes.

Or affections of the spinal centre may consist in gently applied PRESSURE, not in lesion of tissue, and then paralysis, and not spasm or convulsion, will be observed. Or it may consist in sudden or violent SHOCK, or utter destruction, and then, I need scarcely say, that paralysis, and not spasm or convulsion, will occur. All this we have seen demonstrated by experiment; all this you will see hereafter in your observation in the clinical, and especially the surgical ward.

What a means of *diagonis*, then, have we obtained by these simple physiological facts! How has physiology become our guide in practice!

I have thus explained to you, gentlemen, how disease of the cerebral centre may, by pressure downward, affect the spinal centre. But another question arises: How does a disease of the spinal system, as a pure convulsive malady, affect the cerebral?—for such is the frequent event, as we observe in epilepsy.

Observe what occurs in the most MARKED cases of this dire malady. The head becomes fixed, or there is torticollis, by the action of THE MUSCLES OF THE NECK—trachelismus; the jugular and other veins of the neck are compressed; the capillary system of the neck,

the face, the intra-cranial structures congested; the veins start, the arteries throb; the CEREBRAL centre becomes implicated. ALL IS INTELLIGIBLE! ALL IS EXPLAINED!

Affection of the centre of the cerebral system is extended to that of the spinal system—the medulla oblongata—by downward pressure: affections of the spinal system are extended to the cerebrum, by *trachelismus!*

That ALL this is so, is demonstrable. That it is ALWAYS so, is, perhaps, what I ought not, however disposed to do so, to assert. And, gentlemen, does it not constitute a beautiful specimen of the PHYSIOLOGY OF DISEASE? But such is the whole of our recent views of epilepsy and the CLASS of convulsive diseases, as observed in the clinical ward, to which I must now recur.

And first, pray observe with me an experiment or two.

I have removed the cerebral centre in this frog. Its spinal system is still most lively and energetic. I take and rub the toe between my thumb and finger; you observe the almost convulsive movements produced: I now touch the upper part of the spinal centre with this needle: the animal is thrown into the most violent convulsions!

Gentlemen, these experiments are TYPES of disease; they are the types of epilepsy and other convulsive diseases.

The FIRST is the type of EX-CENTRIC epilepsy;

The SECOND is the type of CENTRIC epilepsy.

For the first was induced by an excitant applied to a part of the spinal system at a distance from its centre; the second to that centre itself.

So it is epilepsy; so it is in convulsive diseases generally, in the human subject! Do not these simple and illustrative facts interest you? They are of the deepest interest.

Do you not perceive HOW dentition, and gastric and enteric and uterine irritation, may excite spasm or convulsion, even epilepsy? And do you not now perceive that ex-centric epilepsy is no more an *approbrium medicorum* than infantile or puerperal convulsion; for that it is equally intelligible?

You see again the violent convulsion which I excite by again touching the spinal centre in this frog by this needle.

Such is the dire state of things in centric epilepsy, whether this be of organic origin, or have become organic in its course; whether it be congenital, on one hand, or inveterate on the other.

The cases of epilepsy which occur in private practice are, for the most part, of the former or excentric kind, and CURABLE, however, for many reasons, difficult to cure. The cases which we see in the lunatic asylum, and especially in the work-house, are generally centric, and, must I not add, too generally incurable?

Allow me to draw your attention to this TABLE. It has cost me much labor; but it contains in a page, a volume. You will find it in the Lancet for 1850. Procure it, or copy it, and study it well. For, allow me to say, I know of no such specimen of this most interesting pathology. The CHAIN of events in epilepsy and other convulsive diseases, is pursued in it, LINK BY LINK. The CAUSES are arranged in this first column, the principles and modes of treatment in this last; the *rationale*, the various stages, forms, and complications in the intermediate ones. It would occupy us too long, were I to enter into its details. I have only time for a rapid sketch.

The ex-centric causes act on eisodic nerves, thence on the spinal centre, and thence along exodic nerves, on the various muscles. Of these, few, many, or all may be affected, and the malady may be the very slightest or the very direst. Amongst the rest—I was about to say, chief amongst the rest—are the muscles of the NECK AND OF THE LARYNX.

By the contraction of the muscles of the neck the veins of the neck are compressed, as I have already noticed; and the extra-cranial and intra-cranial tissues and organs become affected with venous congestion and all its consequences. Nay, I am disposed to say that, in every case in which there is such venous congestion of the neck, face, eyes, brain, it arises from this trachelismus, latent or evident. I do not wish you, however, to adopt this opinion without examination; but rather to subject it to a most careful investigation for yourselves.

By the contraction of the muscles of the larynx in laryngismus, this vital inlet to the respiration, combined, as it usually is, with BREATH-STRUGGLES, I believe the direst form of epilepsy, with its direst effects, as coma, mania, dementia, &c., to be produced.

I do not say that these effects may NOT arise in cases in which there is only trachelismus and no laryngismus; but I am convinced that they are CHIEFLY the effects of laryngismus; and hence they have subsided in cases in which the laryngismus has been disarmed by tracheotomy, as I shall have to state at length in my next lecture.

And now, gentlemen, you perceive in what sense epilepsy may be regarded as a cerebral disease. Cerebral in its very ORIGIN it can never be. It may be intra-cranial in its origin, because within the cranium there are many tissues, as the membranes, from which eisodic nerves arise, many eisodic nerves, the fifth especially, pursuing there a part of their course; and the medulla oblongata,—all which may be excited by the presence of an exostosis, a tumor, a variety of diseases. But I repeat that no disease of the cerebral centre, limited to that centre in itself and its effects, does or can produce epilepsy. Yet every day we read in medical writings of affections of the cerebrum inducing epilepsy. Shall I give you an example of this? For once I will relinquish the gravity of my subject, and present you with a specimen of modern pathology, so called: "*I hold* (!) that the peculiar features of an epileptic seizure are owing to the gradual accumulation of morbid material in the blood until it reaches such an amount that it operates on the *brain* (!) in, as it were, an *explosive* (!) manner. In other words, the influence of this morbid matter, when in sufficient quantity, excites a highly-*polarized* (!) state of the brain," &c., &c.

If such feebleness existed alone, I would not add another word. But I am constrained to add that this feebleness is associated in the author whom I have quoted with at least an equal degree of malignity, and in him assuredly the *odium medicum* is NOT extinct.

Exciting causes: the spinal system; the neck; the encephalon; such are the links of this chain of pathology. There remains another to which I must now draw your especial attention: it is, the medulla oblongata, with its PNEUMOGASTRIC NERVE.

I have already adverted to laryngismus as giving to epilepsy, and convulsions generally, its most formidable character. This form of laryngismus is SPASMODIC or CONVULSIVE, excited through the spinal system.

But there is another form of laryngismus. After a severe epileptic convulsion, the patient is left in a state of *coma*, or, as it may be termed, of SIMPLE APOPLEXY. This condition may prove fatal. The respiration becomes stertorous—that is, there is laryngismus. But this laryngismus is very different from that formerly described: it is less complete, but more persistent; it is, indeed, permanent; some one said, in rather familiar phrase, "The patient snores his life away." This laryngismus is NOT, like the former, spasmodic, but paralytic. It is owing to compression or congestion—an apoplectic

state—of the medulla oblongata, and PARALYSIS of the pneumogastric nerve, in which every branch, as well as the recurrent laryngeal, is implicated.

Apoplexy of the medulla oblongata; paralysis of the pneumogastric nerve! Gentlemen, did you ever hear of these expressions before? If, then, I DEMONSTRATE these things to you, you will not have assembled here and listened to me in vain.

Legallois—the illustrious Legallois—divided the pneumogastric above the origin of the recurrent. The larynx became partially closed. The breathing was STERTOROUS. In a word, every phenomenon was observed which I am about to describe to you as occurring in the coma or simple apoplexy observed after a severe epileptic seizure.

And what do we observe? We observe paralytic laryngismus, impeded respiration, augmented apoplexy; we also observe—or rather, I have observed—A DIFFUSED BRONCHIAL RATTLE, the effect of PARALYSIS of the bronchial and pulmonary branches of the pneumogastric!

Here a most interesting phenomenon presents itself. The cerebrum is not essential to LIFE. How, then, does apoplexy, simple, cerebral apoplexy, destroy life? It does not do so. Apoplexy only destroys life when, by its congestion by downward pressure, it implicates the medulla oblongata and its pneumogastric nerve. It is by the apoplexy of this medulla and the paralysis of this nerve, that life is, in effect, destroyed!

Generally the patient dies of paralytic laryngismus, or of laryngeal asphyxia. From this danger he is rescued by early tracheotomy.

But if tracheotomy BE performed, but performed too tardily, the patient, however saved from LARYNGEAL asphyxia, dies of BRONCHIAL asphyxia!

There are other branches of the pneumogastric nerve—the cardiac and the gastric. The heart and the stomach participate in the paralysis of the general pneumogastric.

The observant physician will observe palpitation as a symptom in some cases of epilepsy. This is explained by excitement of the cardiac branches of the pneumogastric.

In other cases, there are hiccup, eructation, acidity of the stomach; the effects of the excitement of the gastric branches of this composite nerve.

As in these cases there is morbid ACTION in the heart and stomach, so in deep epileptic coma there is FAILURE of the powers of these organs.

The pneumogastric nerve is not more involved in epilepsy than in other convulsive diseases. All the phenomena just described as observed in the former, are again met with in the latter, only, of course, modified by the exciting causes, and the conditions of age and sex.

In infants there is the same or similar action of the muscles of the neck, and of the larynx and respiration. In puerperal convulsions the symptoms are identically those of epilepsy.

There is a form of epilepsy which I have not yet noticed. It is the *epilepsia syncopalis*. The patient, instead of turning purple, turns pale and ghastly. Sometimes this syncope is FATAL!

So it is in the laryngismus stridulus of infants. The little patient not unfrequently dies suddenly—too suddenly to be the effect of asphyxia. The case is cardiac, syncopal.

Both these cases are affections [*shocks?*] produced through the medium of the pneumogastric nerve.

But, gentlemen, you remember that I spoke in my lecture of yesterday, of a LOWER medulla oblongata, and of a LOWER analogue of the pneumogastric. These, too, are influenced by the convulsive seizure.

The laryngismus stridulus is frequently excited by enteric irritation. This is also frequently attended by fret of the bladder.

Epilepsy is frequently induced by enteric and uterine irritation, and is sometimes attended by involuntary evacuations of the bladder, rectum, &c.

The urine is frequently morbid in both cases.

There is something in all this ANALOGOUS to the modes of action of the medulla oblongata and the pneumogastic nerve.

It is obvious that both these portions of the nervous system form ONE. Both are liable to be affected in one and the same convulsive seizure.

Perhaps the LOWER portion of this system is most clearly isolated in what relates to OBSTETRICS. To excite the cervix uteri is frequently to excite abortion. To excite the cervix uteri during parturition, is to excite the uterine efforts. But to excite the cervix uteri during parturition is, also, frequently to excite a puerperal convulsion! These are facts familiar to every experi-

enced practitioner. They are PROOFS that "a meddlesome midwifery is bad."

Other facts of the same kind are constantly elicited in practice: to excite the rectum, by the pressure of the fingers backward, excites uterine action; and it is well known that the excitement of the internal surface of the uterus by the hand, introduced in certain forms of hæmorrhage from inertia, excites the uterus to energetic contraction.

All this is accomplished through the LOWER medulla and its analogue of the pneumogastric.

I think that a subject very inscrutable hitherto will receive elucidation from these studies—that of sterility, inertia of the uterus, &c., &c.

The influence of the nerves and passions, with their course of action, their seat and their destination, their physiological and their pathological relations, forms also a most interesting subject of inquiry—a subject, however, to which I can only slightly allude on this occasion.

One point I wish to notice, in conclusion. I have, I trust, in unravelling the mystery of epilepsy, removed one of the *opprobria medicorum.*—*London Lancet.*

ART. III.—*On the Treatment of Pulmonary Consumption.*

Many years have not passed since the treatment of pulmonary consumption was almost confined to the palliation of urgent symptoms, and no encouragement was afforded for the expectations we may now occasionally entertain of witnessing permanent amendment under improved methods of management—expectations which may be cherished chiefly in cases subjected to treatment at an early period, and in those instances of advanced disease where cavities are distinctly bounded, and tubercular infiltration does not exist extensively in the lungs.

Even as respects palliative measures there has been of late some accession to our resources. In support of this assertion, let me briefly notice three distressing incidental symptoms—namely night perspirations, diarrhœa, and cough. In the treatment of night perspiration, sulphuric acid was formerly the remedy most commonly employed, and with very partial success. Other acids, such as the gallic and the acetic. are probably more effectual for the purpose.

Considerable abatement of the symptoms may often be derived from the use of a night-dress dipped in sea-water or a solution of salt, and dried; but a most important improvement in the treatment of this symptom is the administration of oxide of zinc at bed time, in doses of about four grains, combined with any anodyne extract, such as henbane or hemlock. This property of the oxide was first observed by Dr. Robert Dickson. The mode of action of the remedy is undetermined, but the relief induced by its administration is more decided than any other medicine with which I am conversant.

One of the most trying of the complications of phthisis is diarrhœa. It is not my present intention to attempt a description of the various modifications of this condition, but a few practical remarks on the subject may not be inappropriate. When diarrhœa is associated with intestinal ulceration, or with an appearance of the tongue and other circumstances indicating irritation of the mucous membrane, the diet, notwithstanding the existence of debility, must be bland and unstimulating. Instances dependant on a relaxed state of the intestinal exhalants may require astringents. The peculiarities of the individual case must determine whether we select the preparations of silver, copper, or lead. My experience, however, during the last six years, has confirmed my impression, that of all the remedies which have been recommended for this affection, there is none more generally available than trisnitrate of bismuth. This medicine combined with a little gum and magnesia, and when necessary, with Dover's powder, perseveringly employed, usually affects the object more permanently than other measures, and without inducing any opposite or collateral evils.

The variety of remedies employed for the relief of cough serves to show how intractable this symptom often proves; and I think we may assert that, till within a few years, sooner or later, opium in some one of its many preparations, has usually become the chief reliance of the practitioner in its treatment. I rarely meet with instances where the inhalation of chloroform, combined with three times the quantity of spirits of wine, fails to relieve; but there are objections to the indiscriminate use of so powerful a measure. Often the inhalation of camphorated spirits is equally effectual: sometimes the vapor of warm water, or infusion of hops. The simple expedient of swallowing a little oil slowly often gives more relief than the use of what are called intentional medicines. In some irritable con-

ditions, tincture of aconite, in doses of four minims, is worth the trial. When expectoration is profuse, creosote, pyro-acetic spirit, infusion of pitch, or balsam of tolu, may be administered; but of all the remedies referable to this class, appropriate for cases accompanied with profuse expectoration, not one has proved in my hands so efficient as petroleum, or Barbadoes tar, the cough being frequently relieved, and the expectoration rapidly moderated, under its use.

On the treatment of hæmoptysis I need not dwell. Single doses of mercury, and a few saline aperients; antimony, even bleeding, may, in special cases, be requisite. Direct astringents, such as gallic acid and acetate of lead, may occasionally be required. In a larger proportion of cases, turpentine is the most satisfactory remedy, but not unfrequently it is inexpedient to attempt the sudden arrest of hæmoptysis, since, when moderate, it is rather useful than dangerous. Such are a few simple hints which I would venture to offer as derived from my own observations of the treatment of individual symptoms. It is not my present object to give an elaborate essay on the treatment of phthisis, but rather to confine my remarks to the statement of opinions either formed or confirmed by my special opportunities for investigation. I feel that a detailed review of the subject would scarcely harmonize with the broad principles which it was the object of preceding lectures to illustrate. The symptoms thus briefly noticed are but incidental evils springing from that error of the organism which I formerly described as exhibiting itself locally in faulty cell-formation, generally in defective blood, and disturbed, imperfect, hurried action. No satisfactory or systematic view can be presented on the subject of treatment without regard to the different degrees of progress of the morbid action.

The disease may be only threatened. Rapid growth, some approach to the phthisical physiognomy, a pearly or somewhat colored margin to the gums, observed in a member of a consumptive family although not considered an invalid, may be the chief indications of the impending disease. In such instances well arranged exercise, especially of the arms, as in fencing or archery, the adoption of judicious plans of education, and the appropriate choice of climate or employment may often avert decided mischief.

But supposing local pulmonary disease to be commencing, as evinced by a disposition to chilliness; a feeling of oppression under the sternum; gnawing sensations about the scapula; effort in making a thorough expiration; prolonged expiratory murmur; hæmoptysis;

expectoration, of a character resembling isinglass in appearance; a pulse evincing the characteristics formerly described—congestion should then be obviated. A dose of blue pill, followed by an aperient, may be administered. Sometimes the application of a few leeches applied over the threatened part, and the administration of liquor potassæ with infusion of cascarilla, may be advantageous.

But softening may occur, the second stage be established, with the clicking, or "humid crepitation," as an auscultatory sign, expectoration exhibiting, perhaps, elastic tissue under the microscope, as well as characteristic cells of tubercular character. The treatment must then be cautious, unstimulating, but strengthening; exposure to cold or heat must be shunned; change to a tropical climate is now dangerous, and even the excitement of sea air may do harm.

When the third stage is established, indicated by gurgling or amphoric respiration or cough, we have to adopt such treatment as shall strengthen the constitution of the patient, so as to become tolerant of the local disorganization, reparation of which can be expected only under very favorable circumstances and assiduous care.

Such general statements as those which I have offered will not, however, satisfy minds anxious to make a distinct and decided step in the treatment of this fatal disease. Do the modern acquisitions furnished by pathology, zoo-chemistry, and histology, assist us in establishing any principle calculated to determine the appropriate treatment? The chemical condition of the blood of the consumptive patient is, in some respects, analogous to that characterizing chlorosis; but it is not the true olichæmia of that disease, and iron will not cure, although it may often be beneficial as an auxiliary.

We have described the deviation from the natural condition in the process of cell-formation as the earliest local manifestations of phthisis. Will our knowledge in this respect assist our decision? Fat degeneration, tubercular degeneration, and cancerous disease, in their cellular relations, may be contrasted. Cancer-cells as compared with phthisical, have, perhaps, more of albumen and less of fat, but the nature of the action is more important than the attendant chemical conditions. In fatty degeneration, we have life failing; in tubercle, running out by undue rapidity; in cancer running riot.

Is there any kind of treatment calculated to moderate this undue action, and at the same time give tone? I have lately tried the influence of digitalis. The effect of this remedy in lowering the pulse is well known; but I have been interested to observe that the rule obeyed by the phthisical pulse is no longer strictly applicable when

the sedative influence of digitalis has been produced on the heart. If the anomaly of pulse formerly described depends on the presence of the tubercular element in the blood, the restored susceptibility to change of posture might seem to imply that some effect is produced on the tubercular disease. It is worthy of note that some of the most able physicians of the last century attached great importance to the use of digatilis in pulmonary affections. Ferriar's remarks on the subject evince an honesty and intelligence which entitle them to our respect. "Digitalis," he observes, "has often quieted the pulse, relieved the cough and given the patient feelings of recovery." He adds, "the patient's ultimate recovery is not to be confidently expected, even when the pulse is reduced in velocity, and the symptoms are evidently mitigated by the action of the medicine. Many disappointments have taught me not to be elated by one or two instances of success, and I should deceive the public if I presented to them only examples of fortunate practice. To cure (such disorganization as we sometimes observe after death) would require an effort of the power which first created the living body."

It would be unreasonable to disregard the assertion made by so cautious and trustworthy a physician, that after seven years of careful experiment (from 1792 to 1799) he had come to the conclusion that digatilis, with iron for the scrofulous phthisis, with opium for the florid, enabled him often to hope for a cure under circumstances which would formerly have precluded all hope of recovery. On the whole, we may venture to suggest that the endermic introduction of digitalis, by means of a blistered surface may occasionally prove worth the trial, as an auxilliary measure, at the commencement of some cases of consumption.

The importance of careful and discriminating attention to the peculiarities of each individual constitution must not be overlooked; still there is one medicine so safe and, in a large proportion of cases so useful, that I shall be excused for giving it a prominent consideration in the remainder of the lecture. Perhaps there is no substance, the value of which has been in a short time established by so large an accummulation of evidence, as cod-liver oil. About ten years since, in my office as one of the Fothergillian adjudicators, some remarks in one of the competing essays, regarding the efficacy of this remedy in scrofula, induced me to try the medicine in consumption. As far as I am aware, the earliest extensive trial of cod-liver oil in London was made by me at the London department of

the Hospital for consumption, and the results of that investigation were detailed to this society, the coarse kind, such as is used in tanning leather, being employed. Of the first thirty-seven patients, ten were greatly benefitted, and increased materially in plumpness and strength; twelve were slightly improved; twelve remained unchanged; and three were obliged to discontinue the remedy on account of the nausea which it occasioned. Under the use of this oil all the symptoms were ameliorated; the pulse became slower, the cough and expectoration lessened, the night perspirations abated, diarrhœa ceased, and the urine often ceased to exhibit the excess of uric acid. The diminished liability to hectic in patients thus treated furnished remarkable evidence that this variety of fever has more relation to a question of practical interest, whether cod-liver oil owes its efficacy to some ingredient not present in other oils. With a view to determine this question I tried various other oils, such as sperm and seal, and the result was a conviction that fish oils generally resembled one another in their remedial properties, although differing in their aptitude for digestive assimilation in the human stomach. It seemed to me an object of interest to determine whether other animal oils not derived from the liver possessed similar powers; and in the year 1849 I made many experiments in the use of neat's-foot oil. Of the first fourteen patients to whom I administered the substance seven were essentially benefitted, (in three the disease was arrested;) in five there was no obvious improvement; only two lost ground. The oil of neat's foot, therefore, can fairly be compared with that of cod's liver, although, being equally disagreeable to the palate of most patients, it is not likely to come into general use. Dr. Radcliffe Hall, of Torquay, having incidentally heard of this remedy, gave it a trial, and published a favorable account of the effects in the *Monthly Journal* for July, 1852. This physician, not having seen the description of my experiments, his statements furnish an independent confirmation of my conclusions. Neat's foot oil would appear to be adapted to some cases in which there is too much irritation of the intestinal mucous membrane to bear the administration of the cod-liver oil.

I have also tried an animal oil obtained from a soft, solid fat, found between the parchment and the leather skin of animals. The most remarkable properties of this oil, are its very slight tendency to become rancid, and its freedom from drying properties. It seems not unreasonable to expect that it might prove as efficacious as neat's

foot oil; but as yet I have not been able to trace any important advantages to its use. I have tried an oil obtained from a species of fish abounding on the Malabar coast, and frequently with encouraging results. The inefficiency of almond and olive oil, excepting when combined with phosphorous, I have already reported. The result of these trials at first induced me to distrust vegetable oils in general: but happening, eighteen months since, to have a patient engaged in a cocoa nut manufactory, it occurred to me to try the oil of this nut, which, from the nutritious qualities of the kernel, and the peculiar properties of the soap obtained from the oil, seemed worthy of special consideration. In the first instance I tried the common oil—sometimes the solid, sometimes the fluid part. Subsequently, I have used a purified oil, which is obtained by pressure from crude cocoa-nut oil, as expressed in Ceylon and the Malabar coast from the coperah, or dried cocoa-nut kernel, and refined by being treated with an alkali, which deprives it of its unpleasant smell and taste. It is then repeatedly washed in distilled water, in order to separate the alkali with the impurities and rancid matter of the oil. It burns with a feeble, blue flame, and is undrying. For the supply of this oil, and for much valuable aid in my investigations, I am indebted to Mr. George Wilson, of Messrs. Price & Co's establishment. Mr. Wilson has given to my suggestions the ready attention of an enlightened mind, and I am happy to bear witness to the value of the sympathy and co-operation which the well-informed laity can often render in our medical endeavors to apply scientific research to purposes of practical usefulness.

Of the first thirty cases of phthisis in which I administered the cocoa-nut oil, nineteen were much improved, five remained without material change, and only six got worse. Of the last twenty-three, fifteen were materially benefited, three remained unchanged and five became worse. Three of these five were in so hopeless a condition at the time of commencing the remedy, that my clinical assistant thought it scarcely fair to include them in the report. I was careful, for the most part, to avoid the concurrent use of any other medicine; and it is proper to mention, that a large proportion of the patients had previously taken cod-liver oil, and discontinued it from being disappointed of benefit.

Another oil which I have tried is that of the sunflower seed. It is slightly drying, and burns with a smoky flame, showing a large proportion of carbon. Although the sunflower seed is much used

for feeding and fattening poultry, the oil has not, medicinally, afforded me much satisfaction. I have occasionally alternated it with the animal fat oil. Each of these oils has occasionally done a little good after the failure of the other, but no results have occurred worthy of record.

I felt curious to ascertain whether chemical science could suggest any explanation of the diversity of remedial properties in different oils, and, with this object, obtained from Mr. Dugald Campbell an ultimate analysis, which is subjoined, of some of the oils which I have employed:

ULTIMATE ANALYSIS OF OILS.

	CARBON.	HYDROGEN.	NITROGEN	OXYGEN.
Cod-liver Oil.....	80.18	14.72	0.246	5.854
Neat's-foot Oil.....	64.32	12.50	0.064	23.106
Cocoa Nut Oil.....	69.62	12.49	0.060	17.830
Olive Oil.....	69.38	13.47	0.058	17.092

It will be observed that cod-liver oil differs materially from the other oils in its elementary composition. The remarkable difference apparent between the proportions of these elements, especially of carbon and oxygen, in cod-liver oil, as contrasted with the other oils, might lead us to suppose that its superiority might thus be explained; but the inadequacy of such an explanation becomes obvious, when we further pursue the inquiry, and observe a close correspondence in elementary composition between olive oil, which may be regarded, when introduced into the stomach, as medically, almost inert, and cocoa-nut oil, which is fairly comparable in efficacy with the oil obtained from the cod.

I have elsewhere supplied evidence, that the oils which I have chiefly employed evidently modify the condition of the blood. It is perhaps in this way that they accomplish more in correcting the morbid element on which phthis depends, at whatever period administered, than any other remedy with which we are at present conversant. Can they be advantageously introduced by friction? For the last six years I have frequently adopted this plan, sometimes as a substitute, at other times as a supplement to the internal administration of the remedy, and often with excellent effects. In the first patient with whom I adopted this plan six years since, who was affected with vomica and exhausted by diarrhœa, the principal treatment con-

sisted in rubbing in an ounce of the oil flavored with lavender night and morning. He was restored to average health, and some years afterward died of another disease. It is very rare that any measure of real value proves absolutely novel. I had till lately overlooked the fact that Aretæus, Cœlius Aurelianus and Celsus, all speak of inunction with oil in phthisis.

Even neat's-foot oil at the commencement of this century was used by a quack named Samuel Braunston of Shuckburgh, in Warwickshire, for the cure of every disease, and cocoa-nut paste is used in the East for fattening poultry, although as far as I am aware, its medical efficacy was hitherto unknown. I cannot believe, however, that the oil acts exclusively in the way of supplying nutriment, since on the use of a quarter of a pint a week a patient will often gain one or two pounds in weight. It seems to modify the condition of the granules which enrich the blood, and to dispose them to the calm progression of change by which they are made to contribute to the production of healthy structure. I have seen an ulcer with a surface of deficient granulations brought speedily into a healthy healing condition by the daily application of a drop or two of cod-liver oil. Let a few granules be brought into healthy action, and the mass of granules seem to adapt themselves to the law of improvement. The part of the ulcer not directly in contact with the oil is still modified by its influence, and I have sometimes been induced to suppose that something analogous to the contagiousness of action (to use an expression of Liebig, as applied to some chemical phenomena), must be concerned in such results. Let me mention, as an instance of this action, that nitric acid will not readily influence platinum; but if this metal be mixed with silver, the action which is immediately induced by the acid on the latter, is soon extended to the platinum.

It is a popular, and probably correct, opinion amongst whale-voyagers, that their expeditions are a cure for consumption. The quantity of oil under such circumstances drunk and introduced by the skin may contribute to a result which indeed may be further promoted by their active exercise and exposure to the air. In some hunting countries great efficacy is attached to drinking the blood from the jugular vein of a young doe. In both these instances collateral circumstances must be included in the consideration, and the same remark will apply to the experience of various observers, adduced by Dr. Simpson, of the comparative immunity from scrofula and phthisis enjoyed by those who work at certain manufactories, where

oil, being largely employed, is believed to be introduced into the system of the work-people through the lungs and the skin; but the statement is well deserving of careful and extensive investigation. Neat's-foot and cocoa oil answer well endermically, and are not offensive. In conducting a course of oil treatment we must not assume that the oil can be indiscriminately used without regard to the condition of the system, and more especially of the mucous membrane. If a state of erethism exists, the preliminary administration of salines and prussic acid will often be desirable. Since the introduction of cod-liver oil, consumption has certainly been divested of many trying incidents; the progress of the disease is often long delayed, and the final sinking stage abridged. Often the final termination is ushered in by a sudden attack of congestion. I am inclined to think that this condition might occasionally be obviated, and that when the pulse has been for some time gaining strength, and the patient's weight increasing, the oil should occasionally be suspended, aperients administered, and, should any sensation of thoracic oppression be experienced, cupping-glassed applied. Such measures, when well-timed, rather promote than counteract the appropriate effects of the oil.

Let us not forget that the class of remedies we are considering has no exclusive adaptation to consumptive disease, but probably produces its good effects by correcting a condition which, in some degree, appertains to other disorders— for example, to anæmia in its various forms, whether associated with neuralgia, hypochondria, or hysteria, and, above all, that it is particularly suited for children of scrofulous constitution.

If hereditary tendency to phthisis exists in any family, it is surely of great importance to anticipate the pulmonary era, and introduce oleaginous medicines at an early period. The practice of daily inunction with preparations of neat's-foot or cocoa oleine might, I conceive, prove of peculiar efficacy. Were there time I might be tempted to dwell on this subject as affording a practical illustration of a position with which I began my first lecture, viz: that special observation is chiefly useful by conducting us securely to general laws. In the knowledge of laws dwells practical power and prophetic aptitude. It is by cautious experiment and scientific method we may hope to dissipate the mists of theory, and attain to discoveries sought in vain by the blind and guileless industry of former days.

In conclusion, gentlemen, allow me to say that your courteous

attention to the lectures which I have had the honor to deliver will be a subject of grateful recollection in my future career. A motive to continued exertion is supplied by the example and sympathy of so many eminent members of this Society, thus willing to leave the attractions of domestic repose or of profitable engagements, in order to promote the association of scientific research with practical usefulness. It is a privilege to be incorporated with such a fraternity, since men whose minds are habitually exercised for the public good are amongst the greatest boons that Providence has given to the world.—*London Lancet.*

PART THIRD.

BIBLIOGRAPHICAL NOTICES AND REVIEWS.

Child-bed Fevers, in a Series of Letters. By C. D. Meigs, Philadelphia: Blanchard & Lea, 1854. (For sale by Riley & Co.)

It is strange that one so well acquainted, as is the author before us, with the nomenclature of diseases connected with the puerperal state, should make a selection of a name so general in its meaning that it scarcely has any signification at all. This, however, is in keeping with many other things that obtain in this book, as any one may satisfy himself who will be at the trouble to give it a perusal.

The style of the author, as seen in his work on Midwifery, and the one denominated Diseases of Women, &c., is preserved in the volume before us, with no small degree of care. Conscious of its character, he, in several places, alludes to it. He says: "I never made any pretensions to *writing-skill.*" "Words jump into my mouth when I want to speak them, or drop from my pen when I would indite them." [Fortunate man!] Still, he thinks, "no person can write well unless he write deliberately and with constant attention to the manner of his writing." So far, then, as the style of the author is concerned, it is unnecessary for any one to attempt a criticism. He criticises it himself, and thus takes the wind out of the sails of all those

who find enjoyment in this kind of labor. But critics are not always satisfied in finding their labors thus superseded—and notwithstanding an author may attempt to take shelter under an "open confession," his faults, they think, should not only be considered as being none the less, but should be regarded as rather multiplied. The author knows his faults, and some persons would infer from that circumstance alone his ability to remedy them, and appear in the commonwealth of letters, in the garb of chastity and common dignity. Desirous, however, of notoriety, and conscious of incapacity to excel as others have done, by a plain statement of the truths contributed to the common stock, he invokes the aid of what little *ad captandum vulgus* can be manufactured over a loose, rickety method of discussing scientific subjects—rather a poor foundation to rest anything upon.

Throughout the work the author shows great research. Scarcely is there a book, ancient or modern, touching in any way the subject under consideration, but what has been eviscerated. This added to his own experience makes the *matter* of which the work is composed very abundant. Of the character of this matter much might be said. Plainly, very plainly, the doctrine is stated, that the disease is not *a fever, but an inflamation of the pelvic or abdominal viscera;* that indeed it is nothing more than an endo-metritis, a uterine phlebitis, an ovaritis or a peritonitis,—or two, or more of the local phlegmasiæ united.

To this doctrine the author seems much attached; and he sweeps away with a bold hand every fact or argument, it matters not by whom brought forward, that stands in his way.

This doctrine would have done very well for a period a quarter of of a century since, although even then facts enough had accumulated against it to inspire strong doubts of its correctness. It had its origin in the notion that all diseases essentially involve a lesion of structure, and is but a mere fragment of the exploded system advanced with so much zeal and ability by Broussais.

The truth is, Dr. Meigs, notwithstanding the learning he evinces, overlooks entirely the fact that many of the alterations of structure, such as occur in metritis, ovaritis, periotnitis, &c., revealed by the scalpel, are not themselves the disease, but merely its results—the tracks its has left on the organism. The progress made in every department of the inquiry connected with fever seems to warrant the doctrine that some fevers are *idiopathic*, involving a general disturbance of the vital functions, and depending for their existence upon the in-

troduction into the system of an agent that works changes in the fluids as well as solids of every portion of the body. For the want of something more definite it is the fashion now to express these changes by the term zymosis.

That puerperal fever is very frequently of the idiopathic or zymotic kind, depending for its existence upon the introduction into the system of poisonous substances of various kinds, seems to be pretty evident from the fact, that the disease, although, in a certain sense, a unit, owes its origin to a variety of circumstances, and occasionally prevails as an epidemic. A few years ago we had epidemic erysipelas in the Western States. In the Miami Valley, where we were practicing at the time, it was noticed that females, both before and after confinement, to attacks of the disease, were very much predisposed. As a general rule the attacks were more frequent after parturition than before. In many instances the disease commenced within twelve hours after confinement. The character of it in some neighborhoods was very malignant. One physician, practicing in a village, delivered four women in the same week, every one of whom contracted the complaint and died. Death occurred in many cases within forty-eight hours after the first feelings of indisposition. Erysipelatous eruptions about the genital organs were present in a few instances; in the great majority nothing of the kind was observed. The *grade* of the fever, if allowed to judge from the effects of medicine, was not high. A very frequent pulse made its appearance early, with an inclination to still greater frequency, and also to diminution in volume and force. Prostration, indeed, seemed to be the ruling and unvarying tendency. In some of the cases undoubted evidence of pelvic and abdominal inflammation was present—in others there were no signs of any such condition—a fever, and nothing but a fever seemed to constitute the sum of the morbid phenomena. What now was the pathology of this epidemic—not what was its morbid anatomy? Did it consist of an inflammation merely, or was it a disturbance of the vital functions from the introduction into the blood of a poison, contained, as there was every reason to believe, in the atmosphere of certain localities?—or was it the result of erysipelatous poison introduced into the abraded genitals by the physicians in attendance? The course of the disease was too rapid and its mortality too great to be accounted for by any of the phlegmasia. Inflammation, in whatever tissue it occurs, has a certain cycle of changes through which it passes that requires considerable time.

This feature does not agree with the terrible disease we have been considering. A few hours, in many instances, was sufficient to seal the doom of a mother after giving birth to her child. Literally the functions of the organism appeared to be overpowered by the impress of the virus. *Post mortem* inspection in some cases revealed peritonites; others showed no lesions that explained the uncommon malignity.

The records of medicine abound with a form of disease denominated uterine phlebitis, the result of poisonous matter introduced into the vagina and uterus of parturient females. For a long period this form was very rife in many of the hospitals of Europe, and it was ascertained that it was due to cadaveric matter communicated by medical men and students, who had previously been handling *post mortem* specimens.

From the instances of origin to which we have referred, and we might have alluded to many more, it is hardly probable that puerperal fever can always have the same pathology, unless it can be proven that a snake-bite and malaria would give rise to identical lesions.

Instead, therefore, of there being anything like unity in the lesion of puerperal fever, as contended for by the author, there is great diversity, due to the peculiar character of the causes concerned in its production.

As might have been expected from the author's views of the pathology of puerperal fever, the *treatment* is confined almost entirely to *blood*-letting. He remarks:

"At the age of sixty-two years, and after a life in which my medical studies, commencing in 1809, and a copious clinical experience, and no little reading of authors, have continued until the present day, I am become immovably fixed in the conviction, that for the cure of child-bed fever blood-letting is the chief, not to say *sole reliable remedy*. I go further, and say that the dreadful mortality that marks the epidemic form is discreditable to our class; and I say this founding it upon the inexcusable truth, that the disease is always a phlegmasia, and that it has a stage during which the application of the proper remedy is possible, and that only a lack of proper vigilance, or a lack of perception and judgment, too often allows that evanescent stage to be over and passed, while we, alas! doubt and hesitate, and at length judge wrongly of the duty."

The above paragraph is interesting on several accounts. Very true it is that the remedy proposed is in accordance with what might

have been expected of any one who knew the author's views of the pathology. It seems, however, strange that although regarding the disease in question as being a phlegmasia, he should see *no other* remedy for it but the lancet. All know that inflammation is engrafted on very opposite conditions of the system. We have it occuring in a full habit of body, and also in the prostration connected with wasting diseases and anemia. No one in his senses, therefore, would regard the same remedy as being applicable to these opposite states of the system. The loss of blood where there is already a deficiency, not only seems reckless, but, unless the whole profession, at the present time are in a state of ignorance, it would be ruinous. Deficiency in quantity, and want of proportion in the elements of this fluid, are indeed among the prime causes of the hyperemia, congestion or inflammation which so frequently spring up in the course of certain diseases. The effect of the remedy, under such circumstances, would be to increase trouble rather than abate it.

In cases of a purely sthenic character there might be some propropriety in the remedy, But even here more than half of the profession would trust to other means. Opium, opium and antimony, and other drugs of similar properties have been found lately to accomplish results as valuable as those that have been attributed to blood-letting.

The "evanescent stage" of which the author speaks as being the proper period for his favorite remedy, the one in which it will never fail to meet the most sanguine expectations of the practitioner, has no foundation except in the annals of a stale tradition.

The author does not stop merely with the recommendation of blood-letting as *the* remedy in child-bed fever, but he volunteers to say that the mortality which marks the epidemic form is due to the stupidity and effiminacy of the profession in not recognizing it at once as a phlegmasia, and treating it accordingly. Emanating from a novice in the profession such language would be excusable—sensible men, who had practiced much in the complaint, would set him down as an ignoramus, and there the matter would end; but for a man sixty-two years of age, who has had "extensive opportunities for observation in hospital and private practice" to make such assertions, is so far beyond comprehension that nothing short of a reference to decrepitude of mind and obfuscation of thought, connected with declining years, seem adequate to explain.

In concluding our notice of this book we are compelled to say that

it falls very short of the author's reputation. He has been regarded as being up to the times in everything pertaining to his department. The book is not less than fifty years behind the times. It was right for Dewees to advance such doctrine—certainly for no one since.

Prepared for, and addressed to the young men of the profession, and written in rather a familiar kind of style, the tendency of this book must be the very reverse of what, we have every reason to believe the author intended.

A Manual of Pathological Anatomy. By C. Handfield Jones, M.B., F.R.S., and Edmund H. Sieveking, M.D., Fellow of the Royal College of Physicians, &c., &c. First American Edition, Revised, with 397 Illustrations. Philadelphia: Blanchard & Lea. 1854. Pp. 733. (For sale by Riley & Co.)

Certainly, some would say, we already have works enough on Pathological Anatomy. This, however, would be premature, for the science is of comparatively recent origin, and owing to its vastness and the difficulties connected with its investigation, there is still room for a score of men to make reputations as brilliant and imperishable as those of Laennaec, Haller and Hunter. All that we have on the subject, although very creditable to the authors who have acted the part of pioneers in the inquiry, seems to show, among other things, the domain there is yet to explore. Besides, much of what has been investigated, by the laborers who have been in the field, lays scattered through Monographs and Journals, in a form inaccessible to the great body of the profession. To lay before their professional brethren, all that is known in Pathological Anatomy, that is, in every department of it, seems to be the leading design of the authors. They say they have sought "to place before the reader a summary of ascertained facts, together with the opinions of the most eminent pathologists of this and other countries." As far as possible they have regarded it as their duty to select the best fruits from the harvests gathered by other laborers; and it would not be far from correct to regard the authors of the work as being very successful in getting up a very complete manual of what is known on the subject. The arrangement of the several points of inquiry is, first, "General Observations," "Morbid states of the Blood," "Textural Changes," "New Formations," Tumors. The remaining thirty-eight chapters are devoted to an examination of the various abnormal states developed by disease in the venous

system, in the circulatory, respiratory, digestive, urinary, and generative organs, in the joints and in the opeous system.

The elucidation of these subjects is preceded with some very judicious remarks of a general character. The author says:

"The term Morbid Anatomy hardly needs explanation; as ordinary anatomy implies the study of and acquaintance with the healthy structure, so morbid anatomy implies the same of diseased structure. The meaning of *Pathology*, must be clearly conceived by considering that of its twin-sister, Physiology, as the latter imports the knowledge of the natural actions; so does the former that of the unnatural diseased organs. Physiology has her vital stimuli; Pathology her stimuli or excitants to unhealthy life. This brings us to notice a point that has been excellently illustrated by Prof. Simon. He remarks that many unnatural or diseased conditions are not really unnatural in themselves, but are the proper and necessary consequences of some cause or influence which has acted on a healthy body. The state of the skin which a severe burn produces is, certainly, very unnatural and diseased, but the inflammatory and exudative processes which have produced it are quite natural under the circumstances that have occurred; they are the proper reaction of a healthy organism to the unnatural stimulus of extreme heat, and are called forth in the same way as is the healthy flow of blood into a chilled part by the action of a kindly warmth. So in a case of variola, the skin, covered all over with unsightly pustules, is in a very unnatural state; but it is not the eruption, nor the constitutional disturbance that is really unnatural, but the presence of a certain quantity of infectious matter in the blood, which, acting on a perfectly natural system, thus calls forth its expulsive efforts.

"If we slightly alter this perfectly natural state, as by premising vaccination, then the introduction of the variolous poison no longer produces the same morbid effects, and we say the system is protected. The fact is, the system is changed from its originally perfectly natural condition, and will no longer respond to the natural stimulus.

"We find, it may be, a portion of the brain so soft as to resemble cream, quite broken up and disorganized; but, we look further and find that the artery supplying it with blood has been plugged up or tied, and we then see that the locus of the disease was not really in the brain but in the artery; it would have been abnormal had the brain, deprived of its supply of blood, retained its natural texture. Or, again, we see a person suffering from violent epileptic convul-

sions; but he passes a large worm from his bowels, and the attacks cease; in case of this individual the convulsions were the natural expression of the unnatural irritation to which the brain was subjected.

Many like instances might be mentioned, and they certainly show that disease is very often not to be regarded as a special entity of a peculiar strange kind, but as the natural result of the endowments and qualities belonging to our bodily organs when those organs are acted on by certain unnatural stimuli.

Hence we can better understand that many diseases have a regular and normal course made up, so to speak, of a succession of necessary results, which, however, is liable to be disturbed by various extrinsic causes.

For instance, a person has ague, the paroxysms occurring in regular succession; he takes quinine, and they diminish and disappear, the course of the morbid action is interfered with and broken. Or, a child has whooping-cough, and the disease is proceeding in its usual course, but in consequence of exposure to cold, he is attacked with inflammation of the lungs, and paroxysms characteristic of the disease are, to a great degree interrupted, the whoop-cough is merged into pneumonia. Or, again, a person has tubercular deposit in his lungs; the natural tendency of this is to soften, break down, and be expectorated together with the involved tissue, while, as fresh deposits, more and more of the organ is destroyed; but before this can happen inflammation is set up to such an extent in surrounding tissue that life is cut short, not by the effects of the tubercular destruction directly, but by the intercurrent inflammation."

Chapter II. relates to the morbid states of the Blood. On this subject the author well remarks:

"It is manifest that an acquaintance with the healthy properties and morbid alterations of the blood is absolutely essential to a correct study of the phenomena wrought by disease in the solid parts. But the blood itself is a very compound thing, not only as regards the number of different natures it contains, organic and inorganic, not only as regards the manifold additions that it receives from without in the way of nutriment, and those which are poured back into it as the effete residues of tissues, but also as regards its own morphological condition, being made up of solid and fluid parts, of organized particles floating in an organized liquid. In diseased states of the blood these several parts, or some of their constituents, may

be separately affected, and it seems, therefore, desirable, on this account as well as for the sake of greater precision, first to examine the individual component elements of the fluids with reference to their pathological changes, and afterwards to show the diseases of the blood taken as a whole."

In preparing the material for this work, the microscope, as well as the scalpel, has been freely used; as a consequence the scope is much more extensive than that which obtains in the well known works now in the hands of the profession.

An Inquiry into the Pathological Importance of Ulceration of the Os Uteri, being the Avonian Lectures for the year 1854. By CHARLES WEST, M.D., Fellow of the Royal College of Physicians, &c., &c. Philadelphia: Blanchard & Lea. (For sale by Riley & Co.)

The use of the speculum and the labors of those who have devoted themselves to the department of Uterine pathology, have done much to increase our knowledge of the morbid conditions of the Uterus. Yet, this good has also been mixed with some alloy, for so much dispute has been raised about various points in this relation, such strong asseverations, with equally strong contradictions, have been made, that much unnecessary obscurity has been thrown around points apparently simple in themselves, and capable of being elucidated. This is especially true of that point in Uterine pathology of which Dr. West treats. Some have denied its existence, or, admitting its occasional presence, assert that it is of trivial importance, while, on the other hand, another class make it the origin of all the evils to which women are subject, and assert that from 70 to 80 of every 100 cases of Uterine disorder is consequent upon ulceration of Os Uteri as a primary and palpable lesion. Thus, on this simple point, sides have been taken, and the premises debated with an acrimony which should at any rate be foreign to scientific discussion, however characteristic of partizan warfare. To those largely engaged in the treatment of these diseases, the influence of this state of things, though much to be deprecated, is not so pernicious as to the mere general practitioners who, meeting with fewer such cases, must depend mainly for their knowledge of the subject, upon the authors whose works chanced in their way, because large clinical opportunities will enable the former to correct many, if not most of the partial or exaggerated statements promulgated by either class of partizans, provided they

possess (which some, it must be confessed, do not) the power of seeing and judging for themselves. It is satisfactory, therefore, to meet on such a subject a work which, like that before us, discusses the matter in a fair, calm, and dispassionate manner, conveyed in a pleasing style by one who evinces an adequate knowledge of pathology in general, and especially of Uterine Pathology. We may not always subscribe to the conclusions he arrives at, but then his data are fairly given by which to correct or confirm them, and there is a candor, an aspect of seeking the truth rather than the victory, visible throughout the work, exceedingly pleasing. Science has much to gain, and nothing to lose, when investigations are carried on in such a spirit, and none can peruse such a book without gaining some benefit from its teachings. These we shall now glance at as concisely as may be consistent, by setting before our readers Dr. West's views, and some few remarks which seem appropriate to them. The question examined by Dr. West is the following:

"Whether ulceration of the Os Uteri is to be regarded as the first in a train of processes which are the direct or indirect occasion of by far the greater number of the ailments of the generative system; or, whether, on the other hand, it is to be considered as a condition of slight pathological importance, and of small semerological value—a casual concomitant, perhaps, of many disorders of the womb, but of itself giving rise to few symptoms, and rarely called for special treatment.

This proposition is argued under four aspects, viz:

1. How far either of these views is supported by what we know of the anatomy and physiology of the Uterus in a healthy condition. The facts mentioned are no doubt true, and the reasoning on them able, but we must pass over them as quite irrelevant, for probabilities are nothing in medical inquiries, when facts and experiments can be procured, and this our author seems elsewhere disposed to admit.

2. Whether post mortem examinations show this disease to be frequent, or the reverse, and with what other other diseases is it combined? Dr. West, in this connection, gives the result of 62 females examined by him in reference to this point, who, during life, had not complained of Uterine diseases. Of the 62, the uterus was healthy in 33, and diseased in 39. Of these last, ulceration existed in 11. The existence of other diseased conditions was by no means constant. He therefore infers that in by far the majority of cases, the ulceration when present was not merely trifling in extent, but

that it had not given rise to so much irritation of the neighboring tissues, as to produce any appreciable congestion of the mucous membrane in its vicinity ; while the changes in the uterine substance alleged to depend upon it were oftener present without than in connection with it, and, moreover, none of the ulcerations of the os and cervix of the womb were so considerable as those which were apparent in its cavity. We must be careful, however, lest we carry this deduction too far. In a given number of cases of unsuspected pulmonary difficulties an autopsy may reveal, and often does, so many remains of old pleuritic adhesion in those of whom, in life, pleurisy had never been suspected. Yet, we meet cases in life without any greater apparent extent of that disease, presenting grave symptoms which we cannot deny, to be consequent upon the pleurisy existing, because of those in which no such symptoms accompanied the same extent of lesion. Neither can we assent, on the same grounds, that such attacks are of no serious importance to the patient himself. We must also be exceedingly careful in making deductions from the cadaveric appearances in such lesions, which depend much for their characteristic appearance during life upon the amount of engorgement, color, and other characters so easily destroyed by post mortem changes.

3. Dr. West arrives at the same conclusion from the observation of ulcerations occurring in the procident womb. This, however, as he fairly admits, is subject to the great drawback in that, the gradual displacement of the organ, to such an extent, must blunt its sensibilities, and render it insensible to injuries which otherwise might produce disorder of its functions and alterations of its structures.

4. What does clinical experience teach of this disease ? And this is the important stand-point from which to decide the whole question.

Dr. West details the results of the examination of 40 prostitutes admitted for venereal diseases to the Hospital. In 27, os and cervix uteri were healthy ; in 10, slight ulceration, or rather excoriation existed, with no other change of tissue ; in three cases the abrasion was more extensive, surrounding the os for one-third of an inch. In one of these, slight hypertrophy was present, but no induration in any case. So that, whatever else may cause the ulceration, induration, and hypertrophy of the uterus, excessive sexual indulgence does not predispose to them.

In 628 cases of uterine disease, 125, or about one-half had ulceration of the os. It was absent in the rest. The coëxistence of symptoms and other diseases of these and other cases, as given in many elaborate tables, which our space will not allow us to quote, but which we commend to the consideration of the reader. Their results may be set down thus:

—That uterine pain, disturbance of the menstrual functions and leucorrhea, are not dependent upon ulceration, being found as often in its absence as presence.

—That ulceration of the os uteri does not seem to exert any special influence either in causing sterility or inducing abortion.

—That all the evils mentioned, though not the necessary sequences of ulceration of the Os are intensified by its presence.

—That appreciable changes of the Uterus, such as misplacement, enlargement, and hardening of the tissues were found separately or coëxisting in four-fifths of the cases examined, with or without ulceration of the Os, but that an indurated and hypertrophied state of the Uterus existed more frequently with ulceration.

This is not necessarily cause and effect, as the Os was sometimes quite healthy in an indurated and hypertrophied Uterus, and such conditions were found in slight ulcerations, and sometimes were absent in extensive ulcerations of the Os. From which Dr. West arrives at the conclusion that ulceration is not the "general cause of the symptoms which have been attributed to it, or even as a general concomitant of them, or index of their degree and severity."

This line of argument occupies the first two Lectures; the third is devoted to a general consideration of the causes of these symptoms which are regarded by others as dependent on ulceration of the Os Uteri, and their treatment. He takes strong ground against the indiscriminate use of caustics in the local treatment, and very properly, but perhaps leaves an impression against their use at all, which we think is hardly intended, or if so, may be an error on the other extreme. That the indiscriminate cauterizement of the surfaces of the Uterus in almost all its diseases, is a flagrant abuse, cannot be doubted, but in warning others against this extreme, we must not forget that it is equally true, that properly resorted to, they form most useful, if not indispensable auxiliaries in the treatment of some forms of uterine ailment. Lest our readers, however, should think we defend caustics too much, we subjoin the following extract, which contains most excellent reflections for those who treat this or any other

form of female ailments: "I think it should be borne in mind that in connection with this mode of treatment, various other measures are of necessity adopted, eminently calculated to relieve many of the slighter forms of Uterine ailment. The married woman is for a time taken from her husband's bed; the severe exertion to which either a sense of duty urged, or a love of pleasure prompted her, is discontinued; while rest in the recumbent posture places the uterus and the pelvic viscera in just that position in which the return of blood from them encounters the smallest difficulties. The condition of the bowels, probably before habitually neglected, is now carefully regulated, and the patient's diet, bland, nutritious, and unstimulating, often differs widely from that which, while all her functions were overtaxed, she vainly strove to tempt her failing appetite. Add to this that the occurrence of the menstrual period is carefully watched for, and that all precautions are then redoubled, and each symptom of disorder, such as on former occasions had been borne uncomplainingly, though often not without much suffering, is at once encountered by its appropriate remedy, . . . and we have assembled just those conditions best fitted to remove three out of four of the disorders to which the sexual system of woman is subject. But the very simplicity of these measures is a bar to their adoption, for you will bear me out in saying that the rules which common sense cannot but approve, but which seem to require nothing more than common sense to suggest them, are just those to which our patients least readily submit. The case is altered, however, when these same rules are laid down not as the means of cure themselves, but only as conditions indispensable to the success of that cauterization which, repeated once or oftener in the week, is the great remedy for the ulceration that the doctor has discovered, and which he assures his patient, and with the most perfect good faith, produces all the symptoms from which she suffers.

R. G.

The Principal Forms of the Skeleton and of the Teeth. By Prof. R. Owen, F.R.S., &c. Philadelphia: Blanchard & Lea. (For sale by Riley & Co.)

Not long since this work made its appearance in London as a portion of a series entitled "Orr's Circle of the Sciences." Supposing that a treatise of so much value was worthy of a separate

position and a more permanent form, the publishers have given to the public a neat little volume, containing, including the 'Glossary,' 329 pages.

To those acquainted with the literature of Zöology, Comparative Anatomy, and Geology, it is unnecessary to say that Prof. Owen, the author, is not less distinguisded for the originality of his investigations, than the soundness of his opinions and the chaste manner in which they are expressed. His views on "Odentography," "Comparative Anatomy," "The Archetype Skeleton," "The nature of Limbs," and "History of British Fossil Mammalia," have given him a position among Naturalists that makes every thing that emanates from his pen interesting.

The nomenclature employed in this little work may deter some from its study. This should not be the case. "*Alisphenoid*" and "*Neurapophysis*" are no harder to remember than many of the terms cannonized by the zoologists of the day. Ideas must be expressed by their appropriate signs; and without learning and understanding the technical terms of a science that science can not be comprehended. No sophism is more transparent than the one used against what are called the "hard words" of Natural History, in its different departments. Where such words are invented and adopted by the masters in science, their acquisition and retention by the student will be found to be the surest and most available steps of progress.

From the work before us we should like to make a number of extracts, but our space in the present number of the Journal will not permit it. The following, however, we insert as some of the concluding remarks on the skeleton.

"A retrospect of the varied forms and propertions of the skeletons of animals, whether modified for aquatic, aerial or terrestrial life, will show that while they were perfectly and beautifully adapted to the sphere of life and exigencies of the species, they adhered with remarkable consistency to that general pattern, or *archetype*, which was first manifested on this planet, as Geology teaches, *in the class of Fishes*, and which has not been departed from, even in the most extremely modified skeleton of the last and highest form which Creative Wisdom has been pleased to place on this earth."

From this archetype skeleton, found in fishes, the author ingeniously, and, to our minds, philosophically, traces out each element of the bony frame work, as it obtains, or not, in the diversified skeletons of the great classes of the animal kingdom.

Buffon, on this subject, remarks: "It is only by comparing that we can judge, and our knowledge turns entirely on the relations that things bear to those that resemble them, and to those which differ from them; so if there were no animals *the nature* of man would be far more incomprehensible than it is.

"And if this be true in regard to man's general nature it is equally true with regard to his anatomical structure."

In the same way our philosophical poet felt when he said:

> ————'Tis the sublime of man—
> Our noon-tide majesty—to know ourselves:
> Part and parcel of a wondrous whole.—COLERIDGE.

Cordially we recommend this little volume to every one who has any taste for things pertaining to an enlightened view of Osteology, the alphabet of Zoology.

A Popular Treatise on the Skin and Hair. By ERASMUS WILSON, F.R.S. Second American, from the Fourth London Edition. Philadelphia: BLANCHARD & LEA. 1854. (For sale by RILEY & Co.)

The design of this work is to supply a knowledge of that part of the economy of man which forms the exterior of his body and is more immediately under his control, namely, the Skin, Nails and Hair; and, also, to suggest the means necessary to the care and protection of these important parts.

Replete with interest, these subjects should command the attention of every one who designs to pass through life with all the exemption possible from disease.

As a preventive of disease nothing, perhaps, contributes more than proper attention to the cuticle portion of the frame, the seat of eliminations, that, unless properly regulated, must lay the foundation of much trouble and suffering. All the instructions put forth in regard to the prevention of cholera and other epidemic diseases, abound in suggestions relative to the necessity of keeping the skin in a Physiological condition.

One of the leading distinctions between the people of savage and civilized life is the neglect of the former in their attentions to the skin, leaving it for weeks without the use of detergents of any kind, and often imperfectly protected from changes of tem-

perature. On the contrary, as civilization progresses, we find not only increasing attentions to cleanliness of the skin, suitable coverings for it in the different seasons, but the institution of public baths and wash houses, and an eagerness manifested to seek out these places by the rich and poor, which gives evidence that they are appreciated. The first public institution of the kind to which allusion has just been made, was established in Liverpool, in 1843, and met with so much encouragement as to attract great attention in most of the manufacturing towns in England, where they are now not regarded merely in the light of a luxury, but as a public necessity—something that increases the enjoyments of the people and lessens the annual bills of mortality.

To those who have paid some attention to the anatomy and physiology of the skin, the perusal of this little treatise, emanating, as it does, from one of the the most successful cultivators of Dermatology, will be a work of much pleasure. Besides, the work is sufficiently popular to go into the hands of the people, and to become a hand-book in our schools for the education of the rising generation.

A Dictionary of Medical Terminology, Dental Surgery, and the Collateral Sciences. By CHAPIN A. HARRIS, M.D., D.D.S., Prof. of the Principles of Dental Surgery in the Baltimore College, Member of the American Medical Association; Member of Medico-Chirurgical Faculty of Maryland; Author of the Principles and Practice of Dental Surgery, &c., &c. Second Edition. Philadelphia: Lindsay & Blakinston. 1855. 8vo. pp. 800. (For sale at the Odeon Book Store, by S. H. Burr & Co.)

Dictionaries, as well as every thing else in the annals of bibliography, are being multiplied to suit the increasing demands of society. The above work has been compiled by the author for the student and practitioner of Dentistry. The volume before us is one of the second edition, and in it the author has introduced not only the words and phrases purposely omitted in the *first*, but also those that have been subsequently added to the literature of all the various departments of Medicine and the Collateral Sciences. Reflection convinced the author that an extended view of the subject was necessary, since the scope of professional education for the Dentist has become so widened that general Medical and Collateral Science are now, to a considerable extent, embraced in the curriculum of Dental study.

In looking through the work, we are impressed with the belief that the author has performed his laborious task in a manner creditable to himself as a man of science and industry. The definitions of words and phrases, their etymology, orthography, orthoepy, etc., are of a a character that will command respect in the commonwealth of letters.

In its present form the work may be regarded as a Dictionary of *Medical* as well as of Dental Science.

Positive Medical Agents; being a Treatise on the new Alkaloid, Resinoid, and Concentrated Preparations of Indigenous and Foreign Medical Plants. By authority of the American Chemical Institute. New York: B. Keith & Co., Proprietors and Publishers, 582 Houston street. 1854. 8vo pp. 300.

This is a work designed to elucidate a certain department of our Materia Medica—the Alkaloid, Resincid, and Concentrated preparations of indigenous and foreign medical plants. Although it appears in the *form* of a treatise, and is, to some extent, of this character, it also is entitled to the character of a kind of adver i-ement of the drugs, &c., prepared by the American Chemical Institute.

The first Part is occupied with general considerations, in which are embraced a number of topics such as "Object of the work;" "Benevolent Character of the Physician's Mission;" "The profession progressive enough to adopt truth;" "General considerations on the value of Positive Agents;" "Facts which have been overlooked by manufactories;" "Advantages of concentrated agents;" The action of medicines," &c.

Part Second is devoted to the "Concentrated Preparations," and *Part Third*, to "Clinical Reports." The latter head appears rather awkward in a book on drugs. The author, however avows that it has been introduced to show the results which have followed the use of Concentrated medicines.

Nature in Diseases, illustrated in various Discourses and Essays; to which are added Miscellaneous Writings, chiefly on Medical subjects: By JACOB BIGELOW, M. D., Physician and Lecturer on Clinical Medicine in Massachusetts General Hospital, Professor of Materia Medica in Harvard University, etc., etc. Boston: Ticknor & Fields, 1855; pp. 391. For sale by Riley & Co.

Nearly twenty years ago the author of this volume delivered before the Massachusetts Medical Society at their annual meeting a discourse on "Self-limited Diseases," which may be regarded as the foundation of this a more extended effort on the same subject.

That certain diseases are self-limited, has been always known, but the fact has not always had the currency it deserved at the hands of medical men. Placed upon the powers of this, that, or the other remedy or combinations of remedies, the minds of those engaged in practicing the profession have too often lost sight of the habitudes of disease; and, instead of watching, guarding, and, in many instances trusting to the salutary movements of the *vis medicatrix naturæ*, modes of procedure have been authorized utterly incompatable with an enlightened course of medication.

Our appreciation of the list of "self-limited diseases" has been on the increase for some time, and in this respect the papers of Dr. Bigelow may be regarded as a valuable contribution. Hippocrates taught the doctrine of "Critical Days" in fever; and since his time every close observer, unless warped by the influences of some particular theory or system, has seen enough to make him believe that the views of the sage of Cos were not without foundation. This tendency of fever to terminate, after running through one, two or more hebdomadal periods, when properly treated, leads to very valuable results. It prepares the mind of the practitioner to understand the phenomena as they are presented, and to attribute to each one the proper degree of importance. Typhoid fever, for example, has a certain cycle of changes through which it will invariably pass, and from which it cannot be moved by any interference, however vigorous. To understand this, is of as much value to the practitioner as any thing else connected with the pathological habitudes of the complaint. Without a knowledge of it, medication must be uncertain—perhaps destructive.

Among others, we commend this little book to the young men of the profession. They, especially, will find it a useful companion in their first efforts at relieving the sufferings of the race.

PART FOURTH.

EDITORIAL AND MISCELLANY.

Letter from Dr. C. C. Sams.

Hillsborough, Ohio, Jan. 22, 1855.

Dr. Dawson—*Dear Sir:* Enclosed you will find $4, which you will please place to my credit for the Journal.

So much for business, and although you did not answer my last letter, I will add a word or two about the Journal. Without any disparagement to your predecessors, I may say with truth, that it gets better and better; or, at any rate, it suits my taste better. The particular character of the subject matters discussed having more interest for me than those formerly selected, may perhaps account for this. Be this as it may, I am much pleased with your industry and skill as an editor, and hope it may not be your lot to say that "*it don't pay.*"

The most important part of a medical journal to the country practitioner, who seldom enters a book-store, is that devoted to bibliographical notices. From these cursory sketches, his opinions of new books are formed. How important, then, that they should consist of something more than a mere commendatory notice, written as an equivalent for the book sent. A new book seldom comes out that contains anything original, either in matter or arrangement, which could not be briefly and accurately described in a page or two, if the editor had the disposition to do it. Many new books contain not more than one or two new ideas, and I hold it to be the duty of the editor so to write his notice of the work that there can be no mistake in regard to the book in the minds of his readers. In the Journal I think there is some improvement in this respect, and I think there is room for more.

I see that some of the medical speculators in the city of Gotham are making money by treating pulmonary complaints by inhalation. They claim it as a new method of curing consumption and its kindred diseases. How would it do for you to get up an article on the subject, giving a correct history of it, the philosophy of its *modus*

operandi, and the various improvements that have been suggested in the use of medicated inhalations by modern practitioners. The subject is one that should be rescued from the grasp of empiricism, before it is too late.

Another subject of interest I would suggest, "The moderate use of alcoholic drinks as a prophylactic of Tubercle." In these days when "temperance mania" is so rife, it might be dangerous, but I think a very interesting article might be got up on the subject, without treading on the toes of the most intemperate temperance advocates.

Respectfully,

C. C. SAMS.

Remarks.—We insert the above letter from Dr. Sams, for several reasons. We are gratified to find that the Journal in matter and manner meets, to some extent, the approbation of the class to which he belongs. But this is not our only reason. The views expressed in regard to notices of books, the treatment of pulmonary complaints by inhalations, and the prophylactic powers of alcoholic stimulants in arresting a tubercular diathesis, are entitled to consideration.

To conduct correctly the bibliographical department of a journal, is no slight undertaking. The merits of an author, and the pecuniary outlay of his publisher, are the usual implied reasons why a new book should be favorably noticed. Of the validity of the former of these reasons, of course the conductor of a journal has a right to be the judge, and he may condemn or not, as he thinks proper. The exercise, however, of this faculty with reference to many of the publications now coming through the press, is by no means free from embarrassment. Taken upon the "*general count*," most of the new books, upon the score of utility, would have to be condemned. The principal amount of matter that enters into their composition, is not at all new, but on the contrary has been for years before the profession. Upon a "*special count*" the verdict would be different. There is scarcely a new book that appears on any of the departments of medical science, but what contains something that is really new. As all know, a work appeared a number of years since, on Urinary Deposits, by Prout, the father of that whole subject. Considered generally, that work was meritorious, because almost every thing contained in it was new and valuable. Of course it was right to give such a work a favorable reception. Lately a

work has appeared on the same subject by Bird, in which there is scarcely any thing not to be found in former works, save and except the researches of the author on oxalate and oxalurate of lime, together with an improvement of the manner of investigating the whole subject. What, now, should be said of Bird's book? What else, indeed, could we say of it, than that it is a "contribution" to medical science? Hundreds of other new books sustain the same relation to the sciences, and on this account get currency among medical men. It would also be doing injustice to the authors to say that they are not works of utility—such as are demanded by the investigating proclivities of the age. There is another kind of book, such for example as that of "Meigs' on Child-bed Fevers," which not only contains nothing new that is pertinent to the subject discussed, but much, which, if credited and carried out in practice, would be injurious in its tendency. In regard to works of this class, the course of the Journalist is clear.

With respect to the treatment of pulmonary complaints by "*inhalation*," we have but little experience. The plan, however, deserves more attention than it has generally received. Theoretically, there are good reasons in its favor; and practically, much information has accumulated that when rightly understood, is calculated to inspire confidence in this mode of administering drugs.

"Alcoholic drinks as a prophylactic of Tubercle," is worth investigating—indeed, I may say it has been considerably investigated, and that, too, by "temperance" men, who have been more than any others, upon the look-out in regard to the effects of alcohol upon the body in both health and disease. Cases have presented themselves all over the country, where individuals, with predisposition to tubercle, and some actually laboring under a tubercular diathesis, have recovered after taking to the daily use of alcoholic stimulants; and so closely related have been the recoveries from what seemed to be an impending fate, to the use of the stimulating drinks, that many have been induced to believe that the connection was that of cause and effect.

It might seem reasonable to suppose that we could be assisted in an inquiry of this kind by reference to our libraries; but in regard to it, they are exceedingly barren. Carpenter, who wrote "The London Prize Essay on the Use and Abuse of Alcoholic Liquors," an essay that it is supposed contains every thing bearing on the subject, is silent in reference to the matter before us. He thinks

operandi, and the various improvements that have been suggested in the use of medicated inhalations by modern practitioners. The subject is one that should be rescued from the grasp of empiricism, before it is too late.

Another subject of interest I would suggest, "The moderate use of alcoholic drinks as a prophylactic of Tubercle." In these days when "temperance mania" is so rife, it might be dangerous, but I think a very interesting article might be got up on the subject, without treading on the toes of the most intemperate temperance advocates.

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well of wine and other alcoholic drinks in typhus and typhoid fevers, and says that "the result of using wine in typhoid fever was, that the mortality was not above a third of that of the simple expectant treatment, the patients dying under the latter from actual exhaustion and failure of calorifying power—no lesion being detected on post-mortum examination." The epidemic to which he alludes, occurred in Edinburgh in the year 1836–7.

The value of wine and other stimulants in typhoid fever, appears, in the estimation of the distinguished Physiologist, to be due to the circumstance that such things maintain the digestive and assimilative functions, while the disease is running its course. "Day by day (he continues,) the fatty matter of the body is used up by the respiratory process, and thus, as in cases of simple starvation, the patient must die of *cold*, unless some means be provided for the sustenance of heat. In such a condition of the system, no farinaceous or oleaginous matters could be digested or absorbed in sufficient quantity; whereas, alcohol is taken into the current of the circulation by simple endosmose, without any preparation whatever, and can be immediately applied to the production of heat."

So far as disturbance in the functions of digestion and assimilation are concerned, tubercle bears some analogy to typhoid fever. Both diseases are characterized by a predominance of waste over supply. Now, there is every reason to believe that articles which display good effects in the one class of cases, will do so also in the other.

This matter, however, needs more investigation, than it has yet received. Alcohol is a very available medicine, and the abuses which have obtained in regard to it, constitute no reason against its proper use.

For years we have advocated the doctrine that when taken as a beverage, alcohol acts as a slow poison—more destructive in its effects than arsenic, prussic acid, etc.; and for the same length of time we have contended for it as a medicine, and used it when we thought it proper in the treatment of disease.

Michigan University—Homœopathy.—From the political journals we learn that a bill has passed both houses of the Michigan Legislature, requiring the Board of Regents of the Michigan University, to establish a Chair of Homœopathy in that Institution.

This measure must place the present Medical Faculty in rather an unpleasant position. The gentlemen who compose it will either have to teach regular scientific medicine, side by side, with an individual engaged in teaching the most transparent humbug of this or any other age, or they must resign their connection with the Institution. As either course must necessarily destroy the school, it is to be hoped, and it will be expected, that the Faculty will take the latter, the only course by which the dignity of the profession can be preserved.

Michigan has had the reputation, so far as industry and moral worth are concerned, of being inhabited by a very good class of persons. Drawn largely from the New England States, the people of Michigan are mostly the offshoots of the literary institutions of that region—a region where public shools and colleges are proverbially abundant. From a population of this character, the members of the present Michigan Legislature have been selected. It would, too, be a reflection upon the people, to say, that they had not made a good selection—that is, such an one as secured the individuals most likely to carry out their wishes. The present law, therefore, establishing a Chair of Homœopathy in the University is, doubtless, in accordance with public opinion in the State.

After this, who is there that can look forward to the time when the school-master will banish humbuggery from the land? The manner in which he at present unfolds, and the material with which he fills the human mind, constitute no barrier against the sophistry which obtains in reasoning upon the effects of drugs. Educated according to the approved plans of the day, our best scholars are found to be as easy a prey to quackery as the greatest ignoramus of the land. It is unnecessary to cite instances in confirmation of this statement. The patronage given by Professors in literary colleges, by clergymen, by lawyers, and by poets, to quackery of every phase, and particularly to the homœopathic variety, is notorious, and, what seems strange, is, that the support which these classes render to a given system of quackery, is in an inverse ratio to the amount of truth it contains. The nearer a perfect absurdity the thing is, the warmer their attachment to it. Of all the nonsense that has ever been invented, homœopathy takes the lead. Indeed, its strength lies in the obviousness of its inefficiency, and the transparent sophistry of its reasonings.

URINARY DEPOSITS.—We have received from the author, John King, M.D., of Cincinnati, Ohio, "A Table of Urinary Deposits, with their Microscopical and Chemical Tests, for Clinical Examination." This Table, giving, as it does, figures of the principal deposits, and of various extraneous matters found in the urine, will certainly prove itself to be a very valuable companion in the hand of those who take any interest in investigations of the kind. These deposits relate to a field of inquiry vast in extent, and difficult of explanation, and nothing like a general interest in regard to it has yet been awakened. A few individuals have pioneered the way, and have made discoveries that have given them world-wide reputation. These discoveries, however, relate more to the composition, normal and abnormal, of the urine, than to the *import* of matters, found in connection with the fluid. What are we to infer from the presence of albumen, from the presence of cystine, from the presence of oxalate of lime, and oxalurate of lime? or even from the presence of phosphates? Toward answering such questions but little has yet been done. Albuminous urine has a latitude in disease not yet understood. The same may be said in regard to the other articles noticed. To such points investigations should now be directed, and that they will be rich in results—practical, no one who has paid the least attention to the subject, can for a moment doubt.

To Medical Editors and Others—Perplexity—A Fair Warning.

There are some perplexities incident to editorial life which are needless, and can be easily corrected. The one we particularly complain of now, is of frequent occurrence, and we ask our brethren of the press to help us to modify it. We allude to the practice of sending a paper back to the Editor after *reading, dirtying* and *defacing* it. Since our connection with the press three numbers of our Blister have been returned, and each one *cut* and *soiled* in such a manner as to make it useless to us. One pseudo great man returned it and marked conspicuously upon the cover and envelop, "Returned by ———," after keeping the work a month and leaving the impression of his filthy fingers upon its pages. Another sent it back after defacing it, and had the Post-master to mark upon it, "Refused by Dr. ———," in large letters, in two or more places. Another re-

turned it after bedaubing every page with his want of cleanliness, and keeping it a full month.

Now we ask all honest men if such a course is right, when they have not paid a cent for the paper, and, judging from their ungentlemanly conduct never intend to? These things are common, and all newspaper and periodical Editors have them to contend with. The unprincipled men who perpetrate such acts never think that each number of a paper or periodical costs its editor money, and has to be paid for in cash or its equivalent; hence, when a man disfigures an editor's paper and then returns it, he injures the editor and deprives him of a just due. The mere taking a paper from the office makes a man amenable for it, and the responsibility is increased when it is injured. If a man does not wish a paper sent to him, justice demands he should not deface it, nor take it from the office.

We sometimes send a specimen (and seldom at that) to a gentleman, but we never return the favor unless the CASH follows. If the gentleman returns our paper in good order, no harm done, but, when a man of a mere nominal existence sends back our Blister, and it defaced, he incurs our displeasure, because he treats us *meanly* and *ungentlemanly*. Now, to put a stop to such conduct, we propose to our Medical and Secular contemporaries, that we hereafter publish the names of all such trash to the world. For one, we intend to extend to such men what they deserve—*Exposure*. Who will back us?—*Georgia Blister and Critic.*

We have had reason to complain of the same things of which the Blister and Critic speaks, and think well of the remedy proposed.—[EDITOR.

THE MEDICAL COUNSELOR.—We have received several numbers of this work. It is published weekly in this city. R. Hills, M. D., is Editor and proprietor. According to the request of the editor, we enter it upon our exchange list.

STARLING MEDICAL COLLEGE.—The Commencement exercises in this Institution take place March 6; Dr. V. G. Dorsey delivers the Address for the occasion. The gentlemen who are candidates for the degree of M. D. are "well posted," and will make a valuable addition to the profession.

A Case of Vertebral Dislocation, with Favorable Termination. By J. U. Hickerman, M. D., Tiffin City, Ohio.

On the 11th of December, 1852, as I was returning from a ride to the country, in passing Professor R. Good's residence, I was accosted by his lady with, "Oh! Doctor, come in quick; you were sent for, but being absent we have sent for another Doctor, who, however, has not yet arrived."

Upon entering the house I found a female of considerable more than ordinary size lying in bed upon her back, in an extended position, with the head slightly turned to the right. The surface of the body was but little below the natural temperature, pupils dilated, pulse absent at the wrist and elbow, heart's action feeble and scarcely perceptible, respiration absent, except an occasional (one in about two or two and a half minutes) gasp.

I learned from the bystanders that the patient had been thrown from a wagon, the wheels of which had traversed the epigastric and hypochondriac regions of her body.

At first I looked upon the case as one in which organic life was partially suspended, as a result of the shock produced by the fall; and dispatched a person to a neighboring grocery for some brandy, which arrived simultaneous with Dr. E. Reeme, of this city, who had been summoned during my absence.

The brandy was given, at first cautiously, afterwards more liberally, without at all, for some time, affecting the circulation. I now advised Prof. Good and lady to send for the friends of the patient, (she being a domestic in the family,) inasmuch as we feared the existence of internal hæmorrhage, and that death would ensue, without a probability of surgical relief being afforded.

After the lapse of some time the pulse became perceptible at the wrist at first feeble, but soon distinct and of moderate fullness, but irregular, and in quantity of from sixty to ninety to the minute, not beating at the same rate for more than from five to fifteen continuous seconds.

I now suggested to Dr. R. the propriety of artificial respiration, which was commenced and continued for about the space of half an hour.

Vertebral dislocation, at this stage of our proceedings, suggested itself to my mind, and thrusting a finger into the pharnyx of the the patient, discovered a well marked, and easily distinguished prominence, at the junction of the fourth and fifth vertebra.

Upon this discovery I said to Dr. R.: "If you put your finger down her throat you may detect the nature of the case." Upon examination Dr. R. said: "it (the protuberance) was very well marked."

After a little reflection I seized the patient's head under my left arm, with which I made traction, and with the index finger of the right hand in the patient's throat, I made firm pressure obliquely upward, backward and to the left; after continuing this pressure for about forty to fifty seconds, the part against which the finger was placed gradually, yet quickly, receded in the direction in which the pressure was made, and instantly, as quickly indeed as the act could possibly be executed, the patient opened her eyes, and natural respiration was established. The patient immediately became conscious of what was transpiring about her, recognized the persons present, and upon being asked if she was suffering any pain, signified by signs (being unable to speak,) that she had, and when asked its locality, referred to the epigastric and hypochondriac regions.

Two hours after the above occurence I again seen the patient, and found her comparatively comfortable, with a pulse of 80, somewhat small and hard, and respiration nearly natural. At 7 o'clock, P. M., eight hours after the occurrence of the accident, reaction had ensued, accompanied with hot surface, accelerated breathing, quick, full pulse and thirst; blood was now abstracted to the amount of about 25 oz, a saline cathartic ordered, and Tart. Emet. given in solution in sedative doses, and the patient was speedily restored to perfect health, which has been uninterruptedly enjoyed up to the present time, a period of twenty six months.

At the commencement of Starling Medical College, held on the 6th inst., the degree of Doctor of Medicine was conferred on the following gentlemen:

G. W. Pullen,	Jas. Ware,	Patrick McCann,
E. S. Merriss,	T. Hudson Armstrong,	J. P. Cowan,
Van S. Seltzer,	B. H. Hoyt,	J .D. Airey,
A. V. Apperson,	J. C. Richardson,	D. Noble,
Sam'l J. Smith,	Albert Longwell,	W. G. Scott,
J. W. Waters,	Isaac D. Monnett,	N. B. Prentice.
	G. H. Bane,	

The Honorary Degree was conferred on the following gentlemen: Dr. R. J. Mann, Milford, O.; Dr. Mustoe Chambers, Tipton, Iowa; Dr. R. Culver, Logan county, Ohio.

Observations on Animal Heat. By T. W. FORSHEE, M.D., of West Jefferson, Ohio.

Dr. DAWSON:—As animal heat has been a subject of much controversy, I deem it proper to add a few reflections on this important subject; and if they meet your approbation, you will do me a favor by giving this article a place in the "*Ohio Medical and Surgical Journal.*"

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In discussing this subject, I will divide it into three heads:

1. *The Sources of Animal Heat;*
2. *The Amount Generated;*
3. *The Means of Regulating the Temperature of the Human Body.*

In the examination of the first part of this subject—the sources of animal heat—the mind naturally turns to that part of the animal economy which distinguishes it from the vegetable world—the nervous system; and to this has been attributed the production of animal heat. But although it may exert a modifying influence in its production, yet it cannot be considered the generator of heat. For we find that in the vital processes of organizations devoid of a nervous system, the same results are being constantly produced; that is, certain changes which are constantly taking place during the vital actions of vegetable organizations, are constantly attended with the evolution of a certain amount of heat. And although small at ordinary periods, and scarcely perceptible because of its being rendered latent by the evaporation of its moisture; yet, at the period of reproduction or flowering, the quantity is so great (where a number of plants are collected together) as to produce an elevation of temperature of 40 or 50 deg. above that of the surrounding medium. During the germination of weeds a considerable amount of heat is thrown off. With this fact every farmer and brewer is familiar, although he may be ignorant of the principle.

The amount is so great where large numbers are thrown together as to be distinctly felt by the hand. Now, all these facts prove conclusively that heat *may* be, and *is* generated in living organizations devoid of a nervous system. And we find, also, that during certain changes which are taking place most rapidly, as during the reproductive period, the greatest amount of heat is evolved. Now this change is found to consist in the union of the oxygen of the atmo-

phere with the carbon of the plant; or the absorption of oxygen, and the extrication of carbonic acid, and the amonnt of heat evolved is in proportion to the amount of oxygen absorbed. Now, by an examination into the subject of calorification in animals, we find the same phenomena, attended with the same results. In the respiration of animals we find the same changes continually taking place, that is, the inspiration of the oxygen contained in the air and the expiration of carbonic acid, hence we at once come to the conclusion that here is generated a portion of heat. And this conclusion is fully sustained by experiment. Yet this is not sufficient to account for all the heat generated in the animal economy. We must examine further: and we find the oxygen consumed is more than sufficient to form the carbonic acid exhaled. It must, therefore, unite with other constituents of the body, and this union is also a chemical action, and would be attended by the evolution of a certain amount of heat, but a part is used in the formation of water, by its union with hydrogen, which escapes in the form of watery vapor from the lungs. A portion, also, is consumed in the formation of the salts which are excreted, as the phosphates, sulphates, &c. The oxygen, uniting with the sulphur, phosphorus, &c., which are taken in as food, to form acids, which, uniting with the various earthy matters of the body, form the salts that are found in the excretions. All these actions are attended with the extrication of some caloric.

We find that vigorous exercise of the whole body produces a general elevation of temperature, and that the violent exercise of a particular part will produce an increase of temperature of that part, while the remaining parts of the body are unaffected. We conclude that the molecular changes that are taking place, are also attended by the extrication of caloric.

And this brings us to the second part of our subject.

The amount of Heat Generated in the Animal Economy.

As has been stated, the amount of caloric is augmented by exercise, either of the general temperature by the exercise of the whole body, or locally by the exercise of a particular part. In the first instance this is accounted for by the increased activity of the general circulatory and respiratory systems. In running, for instance, the muscles of the legs, arms, and chest are all in rapid motion—every movement causes the destruction of a certain amount of tissue, which must be replaced. This produces a determination of blood to these parts. The changes are rapid because the contractions of the mus-

cles are rapid. The circulation is hurried, because the disintegrated matter must be carried off and new matter supplied. The respiration is also greatly hurried, because the carbonic acid and other matters excreted by the lungs must be thrown off, and the blood that is again to be thrown out for the supply of the tissues must be ærated before it is fit for use. All these changes are rapid, and the generation of heat is in proportion, and would be greater were it not for provisions for its regulation, which we shall discuss in another part of this article. We find that activity or rest affects the amount of caloric evolved. We find from observation, also, that it is varied by age, by different degrees of vigor in even healthy persons, and greatly affected by disease.

In case of premature birth, artificial heat must be assiduously applied in order to maintain the temperature at a normal standard, and in every case more clothing is required for the child than for the adult, or rather for a man or woman in the prime or vigor of life; for we find that as we advance toward old age, our powers of enduring cold air, not much greater than those of the infant. And as we would anticipate, we find that in diseases involving an accelerated pulse, and an increased respiration, the heat is augmented. In some diseases of the lungs, as Phthisis, where the respiration is very quick, the temperature is elevated. So, also, during the active stage of inflammatory fever, and in diseases of the heart, where the circulation is very rapid, we find an increased temperature. While on the other hand, in diseases where the circulation is feeble, and the respiration slow; as in cholera and diseases of a similar character we find a diminished temperature. Long exposure to an elevated temperature will affect that of the body, or exposure to a very low one, will decrease it, although it possesses to a remarkable degree the power of adapting itself to the surrounding medium. Operators in glass manufactories, in foundries and rolling mills, afford examples of their power to endure an elevated temperature. Instances are given of individuals who, from custom have been able to endure for a considerable length of time a temperature of from 300 to 400 deg., and I have seen men laboring with apparent comfort for days in an atmosphere whose temperature would have been intolerable to one unaccustomed to it. And so, also, we find that the inhabitants of the tropical climates live comfortably where the thermometer stands a great portion of the year at 100 deg.; and in the artic regions as low 50 deg.

The average temperature of the human body is about 98 or 100 deg., and the variations produced by the temperature of the air are very slight. Now what are the provisions for maintaining the natural standard amid all the changes to which it is exposed. In cold climates, we find the inhabitants making use of large quantities of animal food, and particularly of fatty matter. The New Zealanders and Kamschatkians use the pure oil of the whale; this supplies carbon to the blood, and from experiment it is found that the fatty matter contributes largely to the supply of material for the manufacture of heat. Activity and severe exercise also enable the body to maintain its temperature. The other extreme is met by the process of evaporation. There is in the healthy state, a constant secretion by the small glandulæ of the skin. This secretion is augmented by heat and decreased by cold. In very warm weather this secretion is very great, even when the body is in a state of perfect repose; and as it is constantly evaporating, any great accumulation of heat is prevented; for in its conversion into vapor a large amount of heat is constantly being carried off. In cold weather the fluid ordinarily excreted by the skin is thrown off by the kidneys, and thus the loss of heat is prevented by the vicarious action of one organ, when the other is depressed, or rather the two alternate with each other, exercising a counterbalancing influence on the temperature of the human body.

Books Received.—We have received the following works for review in the Journal. They will all be noticed in next No. more in detail,—

Autobiography of Charles Caldwell, M. D.—A readable book, and one, too, that will make upon the mind of a young man a great many valuable impressions. It comes through the publishing house of Lippincott, Grambo & Co., Philadelphia, and, as a consequence, is very fine in mechanical execution.

"*What to Observe at the Bed-side, and after death, in Medical Cases.* Published by authority of the London Medical Society of Observation. Blanchard & Lea have given us this little volume in a costume that is well suited to the invaluable matter with which it is filled. For sale by Riley & Co.

Horner's Naval Practice—By Lippincott, Grambo & Co. 1854. Philadelphia.

This volume is written by G. R. B. Horner, M.D., Surgeon in United States Navy, aud is devoted to a consideration of the Diseases and Injuries of Seamen, with remarks on their enlisment, naval hygiene, etc.

To all this work will be interesting, but to a certain class—those connected with Naval service, it must be eminently useful. The diseases and injuries of seamen are, in many respects, peculiar, and, even from well educated men, require special consideration.

Much will also be found in this book relative to the duties of Medical officers, Surgeons, Assistant Surgeons, Passed Assistant Surgeons—the mode by which they are appointed—the defects existing in this mode, etc.

At the present time many young men seem to desire places in the Medical department of our Navy. All such should at once possess themselves of the work before us, and they will see shadowed out an outline of the qualifications and duties required.

Clinical Notes of Surgical Cases.—From the Clinical Lectures of E. M. Moore, M.D., Professor of Surgery in the Starling Medical College, Columbus. (Reported for the Journal.)

(*Continued.*)

Cataract.—The means of removing this cause of blindness was illustrated in two cases. The method employed was by couching. The lecturer remarked that this and the one by absorption were the more usual modes made use of in this country. Extraction had never become so popular as in Europe, although when it is successful it is more completely so than any other method. By any other we frequently have trouble from portions of the lens. Extraction, moreover, produces more speedy vision, unless we except the most fortunate cases treated by couching. This latter method presents less danger than extraction, and the process of absorption still less. Moreover, the condition of the lens render the different operations more or less applicable. When firm, it is to be extracted or depressed. In the last patient which I have just operated upon, I was induced to believe that the lens was not very soft in consequence of its grey color. When it is soft it is white, and of course there

may be an imperceptible shading of color until it is entirely transparent, or black, or amber-colored, which last three conditions are indices of a firm lens. Age furnishes some means of diagnosis with reference to this fact. In the very young, it is apt to be soft, and in more advanced periods, hard. In the operation for couching, we desire firmness of tissue in order that the lens may be pushed entirely from the line of vision. This case the light grey color rendered the diagnosis a little doubtful, and the needle being introduced at the usual point, a line back of the cornea, was carried between the iris and the lens, pressure made upon the anterior part of the opaque body, a little above the center, in order to carry it down, but it was rather softer than I expected, and while the central portion became disengaged, and was removed to a lower spot, the part of the external layer and the capsule remained in situ. The needle was brought to bear upon this at the center, and freely cut, so that it must be completed by the process of absorption.

Granular Conjunctiva.—In speaking of the various persons who came before the class with this disease, Dr. Moore took occasion to call attention to the present tendency to underrate the advantages of local depletion. Scarification of the lids had been very much reprobated for producing permanent ridges upon the tarsus, which maintained the inflammation upon the ball, and which remained permanent. "This," he remarked, "it seems to me, need not happen, and if the sharp knife is delicately used, so that the incision does not go deeper than the mucous membrane, the roughness will not occur. The scarification alone, even as local measures, cannot be relied on. Nitrate of silver, and other caustics, must be employed to give smoothness to a surface which is roughened by organized effusions. In the application of these remedies, and especially of the nitrate, great care is to be used, in order to avoid an excessive quantity at any one time. Violent, and even dangerous, inflammation often results from neglect of proper precaution. Others propose a strong solution of 20 or 40 grains to the ounce, which is applied by camel's hair pencil. Here we get too much of a solution, not strong enough. The best mode I have ever seen is to moisten a brush, and leave not a single drop upon its end. This now rubbed upon a crystal of nitrate of silver, gives us an exceedingly minute quantity of saturated solution. If the brush is drawn across the granulated lid, an extremely delicate, but perfect, pellicle is formed on the surface, which

subserves the double purpose in destroying the sharp points of the granules and protecting the eye from their attrition. This is to be frequently repeated, often daily. But you must not understand that local measures alone are sufficient to the cure of this disease. The general health must be carefully attended to, for, like other chronic inflammation, it is almost hopeless to expect recovery unless this is placed upon a satisfactory footing.

Lithotomy.—The following history of the case, and remarks of the Professor, occur in connection with a case in which the operation was performed before the class.

A. Mitzell, a German, aged 42, but much older in appearance, below the average stature, had sufferered from irritable bladder for the past three years. Until nine months since he says he had, at varying intervals, paroxysms of severe pain in the region of the kidneys, followed by the discharge of small calculi. When free from these attacks he was able to pursue his ordinary labor. Since that time, however, he has passed no calculi, but the irritability of the bladder, has been excessive, with constant and steady pain, obliging him to rise from ten to fifteen times during the night to void his urine. By the use of strong anodynes, he was able to restrict himself to two or three times. In this condition he remained when seen (the 25th December last) first by Dr. Hamilton, under whose care he remained before and after the operation. Pulse was about 110. Mouth and fauces dry, skin hot and his appetite greatly impaired. His sleep was still much disturbed. Micturition was very frequent and accompanied with sensations of scalding. He complained of constant pain around the situation of the kidneys and bladder, and numbness upon the inside of the thighs. He also suffered from hæmorrhoidal tumors and tenesmus. The lower part of the abdomen was exceedingly sensitive to touch and pressure. Dr. Hamilton introduced a silver catheter (having no other with him at this visit) and recognized the presence of a foreign body in the bladder. Three days after he introduced a steel sound and immediately made out a calculus with great facility in all postures of the patient. Striking the stone produced a very sharp and loud tick. He was advised to submit to an operation for the removal of the stone, and was meanwhile treated by hip baths, rest and anodynes. The patient was brought before the class and lithotomy (by the lateral method) performed upon him by Dr. Moore, on the 13th of January. The operation presented no difficulties but such as occur in the more favorable cases.

Less than a pint of blood was lost, which seemed to come from the superficial perinæal arteries and branches of the hæmmorrhoidal, which a little pressure and exposure entirely restrained. The incision through the prostate was completed by the probe-pointed scalpel. Two calculi were found—one exceedingly soft, which crushed under the forceps—the other was removed entire, weighing two drachms.

He was kept under the influence of chloroform during the operation. He was immediately afterward carried to his bed in Starling Hall. By the free use of opiates he suffered but little for the first four days. There was no tenesmus of bladder. At the end of that time he had a severe chill, followed by high fever and sweating. This was succeeded (in forty-eight hours) by another well-marked chill, terminating in continuous fever, with irregular chilly sensations. The tongue was dry and hard, the skin hot, respiration labored, reaching 40 a minute. Pulse 120.

The wound (which was left open) progressed satisfactorily. After a few days it became reddened and hard, involving the perinæal region generally. In some portion of the wound adhesions took place—in the remainder granulations proceeded rapidly, so that the discharge of urine from the wound was arrested on the eighth day. A small quantity had also passed by the urethra a few days previously.

The fever persisted for about three weeks. Irregular remissions occurred in its course, during which the frequency of the pulse was reduced to 94. At the end of the fourth week the respiration had become natural—the skin and mouth moist. The fever subsided and the appetite began to improve. He enjoyed comparatively excellent rest, with only two or three interruptions at night. By this time, also, the wound had perfectly closed. He was treated during the febrile attack by stimulants and quinine, with admirable results.

In commenting upon the case at the time the lecturer remarked that the lateral operation for stone was the one usually employed in this (and, indeed, in every) country, but many modfications have been proposed by distinguished surgeons on both sides of the water —the intent of which uniformly is to obtain a large opening in the perinæum, without increasing the hazard to the operation.

Dupytren, in the latter years of his life, performed the bi-lateral operation almost exclusively, by which an incision was made in each side of the prostate. These incisions were directed downward and upward, in the same direction as the single one in the lateral method,

but he has not been followed by the profession either in France, England or this country, as there is some danger of wounding the ejaculatory ducts, and the opening in the prostate requiring a longer period of time for its closure. Moreover, the increased space obtained is less than might be supposed, for a stone much larger than the prostate will readily pass through a cut in the side of this gland. We are always anxious when entering the neck of the bladder not to extend the incision through the prostatic fascia, for the danger arising from infiltration of urine is vastly increased in that case. When the stone is seized and traction gently and steadily employed, the gland gives way, sliding along the inner surface of its fascia—whereby a large stone can be removed without its division or laceration. Still, if it can not be done, an incision should be further made on the stone in order to enlarge the opening while traction is going on. If the stone, however, be very large, which, of course, can be entirely determined by the introduction of the finger, it is better to convert the operation into a bi-lateral one by introducing a scalpel and making a symmetrical cut upon the right side of the prostate, and thus effecting, when the necessity occurs, the same division of the parts which Dupytren obtains by his "lithotomic cache."

The lecturer further observed that the seizure of the stone was often difficult, and in truth when there was any considerable delay it almost constantly arose from this difficulty. There were many reasons for this. It was sometimes retained in the upper part of the bladder, by a sort of "hour glass" contraction of this viscus, and when the urine is voided the bladder presents a cylindrical appearance, the top of which reaches to the superior part of the pubes. This is rare, but the lecturer had seen and operated upon one such case. Curved forceps are necessary to reach the stone in such a position, and even then they are applied with difficulty. Again, the stone may become encysted, hernia of the mucous membrane may take place, and the urine not being thoroughly evacuated from this little sac, deposits occur, and their aggregation within this secondary sac forms a stone. Seizure here is still more difficult and sometimes impossible, for when the bladder becomes emptied the orifice of the sac becomes closed so that even the fingers can not detect it when thrust into the bladder and when discovered there is much trouble and danger in seizing it, for the aperture may be so small that the forceps cannot be introduced, and even if it be possible there is no inconsiderable fear that they may not include the portion of the mu-

cous membrane in their grasp. And if the instrument cannot be applied the opening must be enlarged with a probe-pointed Bistoury, which always increases the danger of infiltration of urine.

The usual position of the stone, however, is at the lower part of the bladder, and when the bladder is open, a sudden gush of water ordinarily brings the calculus towards the neck, where it is easily seized. But there may be trouble when it lies in the lower part of the bladder; if the prostate should be enlarged, the depth of this cul de sac is very much increased, and the forceps reach the stone with some difficulty, so that even curved ones must sometimes be employed. Ordinarily, the calculus is best grasped by dilating the blades of the instrument horizontally, and when dilated, giving it the sweep of a quarter circle which presses the outer surface of the hollow blade against the wall of the bladder, and brings it underneath the stone, thus diminishing the danger of wounding the mucous membrane when closing the blades. It is unnecessary for me to say, that all such manipulations, both when searching for and extracting the stone, must be conducted with great delicacy and tenderness. No man is justified in violating these just and sound rules of surgery, in hopes of completing a "*brilliant*" operation!

The urine will now flow along the surface of this wound, and it has been customary with some surgeons to introduce a large catheter through the wound into the bladder for the purpose of preventing so large an amount of this irritating fluid from coming in contact with the raw surface; but some urine will flow on the outside of the catheter, producing more inflammation and infiltration of albumino-fibrin in the adjoining tissue, than in ordinary granulating wounds. It does not appear that the slightly increased quantity of the same fluid produces much more inflammation, and the presence of the catheter in the bladder induces almost uniformly, tenesmus to a great degree. It is not uncommon for the urine to pass partially, if not entirely, by the urethra on the second day. This is incident to the excessive swelling of the soft tissues and perinæum which closes up the wound so firmly as to retain the fluid. This, however, soon subsides, and then it gaps sufficiently to allow the urine to pass through the cut. Occasionally, union by adhesion occurs, a fact which seems to be ignored by nearly all writers upon surgery, and an illustration of which was presented by a case operated upon by myself in this Institution the last winter. In this patient closure took place on the second day, and no more urine

passed except by the urethra. Ordinarily, a portion passes by the urethra at the termination of about eight or ten days, and the wound gradually closes, until at the end of two or three weeks the urine ceases to pass by its surface, and then it rapidly cicatrizes.

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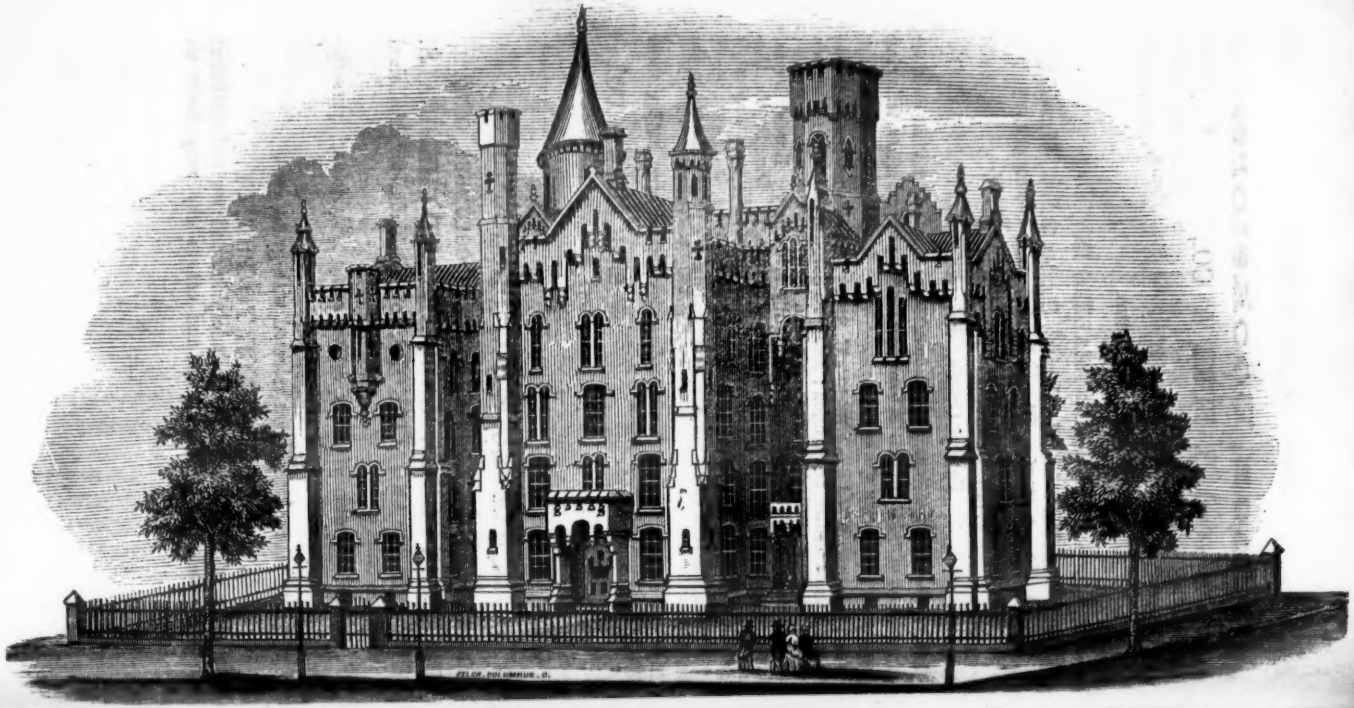

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